# THE ROLE OF THE COTTAGE HOSPITAL

A study of general practitioner in-patient referrals to central and cottage hospitals in North-East Scotland

by

JOHN SANFORD BERKELEY

M.B., Ch.B., Dip.Soc.Med.(Edinburgh)

F.R.C.G.P., M.F.C.M., D.Obst.R.C.O.G.

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## ABSTRACT OF THESIS

Many general practitioners wish the opportunity to treat suitable patients of their own in hospital, and the official policy is that general practitioner hospital beds should be available for in-patient care.

There is, however, no recommended level for the provision of beds for general practitioners, and none of the published studies relating to general practitioners and their work in hospital have been designed to estimate an appropriate figure. Estimation is made difficult by the absence of information on the different use of hospital resources by doctors with and without cottage hospital facilities.

This study was designed, firstly to determine a rational basis for the provision of general practitioner beds in rural areas, and secondly to define the categories of patient best suited to care in cottage hospital beds.

On the basis of observations made in a series of related studies a ratio of 1.5 cottage hospital beds per 1000 population is suggested for the Grampian Health Board Area, excluding the City of Aberdeen.

The total in-patient referral rate from practices with cottage hospital facilities is noted to be higher than from practices without such facilities. The use of hospital beds in Aberdeen is lower for the practices with access to cottage hospitals than for those without, and this difference is confined

to the use of medical units in Aberdeen. These results are compatible with the hypothesis that half the function of a cottage hospital is to treat patients who would otherwise have been admitted to a general hospital; the other half may represent patients who should be in hospital if cottage hospital beds were available.

The principal reason for referring a patient to a cottage hospital is the need for intensive nursing care. Three-quarters of all patients admitted to cottage hospitals are fully treated in the cottage hospital. Over half the patients are over the age of 65 years and one in ten of these patients are in a cottage hospital bed for more than three months.

The patients most suitable for care in a cottage hospital appear to be those with bronchitis, pneumonia, cerebro-vascular disease, ischaemic heart disease or malignant disease. Cottage hospital beds play a particularly useful role in the care of the elderly, the convalescent and the terminally ill.

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# SECTION 1

# INTRODUCTION

# CHAPTER 1

## INTRODUCTION

In any investigation of the role of general practitioner beds certain questions must be asked - what is the policy on the provision of such beds, who is being cared for in the existing general practitioner units, and what is the present use made by general practitioners of these beds and of general hospital beds.

In the treatment of an individual patient the general practitioner may decide to treat the patient at home or to refer the patient to hospital. If the patient is to be treated as an in-patient, then the general practitioner will have to decide on the appropriate unit, and this may in some cases involve a decision on treating the patient in a general practitioner unit. Such decisions involve an assessment of not only the medical needs but also the nursing and social needs of the patient. When the patient is in need of specialised care there is little or no problem about the decision, but when the patient is not in need of specialised care then the varying needs of the patient and the availability of a hospital bed influence the decision. It is in this area that the role of the general practitioner hospital must be considered.

## HISTORY

Historically the development of cottage hospitals is a reflection of the growth of voluntary hospitals and their separation from general practice. As the hospital became more important in medical care, so complete general practice care was seen as requiring its own hospitals.

The first cottage hospital was opened at Cranleigh in 1859 and was described in the Lancet (editorial, 1860) as "A sensible and useful development of local philanthropy". The original concept was of an ordinary cottage provided with six beds for patients and with a nurse in attendance.

In the present study of cottage hospitals in the North-East of Scotland it is interesting to note that one of the first two cottage hospitals in Scotland was built at Crimond in 1865. The public and neighbouring proprietors contributed money and materials towards the erection of the hospital which continued to serve the population of Crimond, Lonmay and St. Fergus until the hospital was closed in 1905.

The role of the cottage hospital was defined by Swete (1866) - "The village hospitals should admit cases which could under any circumstances be treated by the medical men at their own houses but with far greater prospect of success in the village hospital; butt they should not admit cases of great doubt or difficulty which might be treated with greater benefit to the patients in a county infirmary" .

In less than 20 years the cottage hospital movement had progressed so rapidly that Burdett (1877) found, "Cottage hospitals so general that only five counties in England did not possess at least one". He went on to say that "These cottage hospitals are constructed with a rapidity that bids fair to soon bring the hospital accommodation up to the standard laid down by the best authorities, viz. one bed for every 1000 inhabitants in a rural area".

The provision of beds at a rate of one per thousand population was an ideal to be aimed at, though unlikely to be achieved. The 1861 census showed that in England, whereas the principal provincial towns had a bed provision of about 1 : 700, most of the counties were very different - Surrey 1 : 9,000; Monmouthshire 1 : 56,000; Rutland no beds for 22,000 and Westmoreland no beds for 60,000 population. At that time the achievement of one bed per thousand population would have meant the provision of some 9,000 extra hospital beds.

There were seen to be many advantages to the cottage hospitals (Burdett, 1877) - provision of clean and quiet surroundings, an adequate nourishing diet, the attendance of a trained nurse, relieving the family of the responsibility for care. Two other main advantages are still as relevant to-day as they were a hundred years ago. These are the advantage to the patient of being skilfully nursed near his own home, which obviated a long and tiresome journey to hospital, and also meant that he was not separated from his family at the very time when he most needed to be cheered and comforted. Those attending him, doctors, nurses and other staff, being people with whom he has been acquainted for many years. The second advantage is to the doctor, who is able to undertake better care than would be possible in the patient's own home, while at the same time enabling him to treat those patients whom he feels competent to manage and thereby developing his medical skills to the fullest.

POLICY

The concept of providing in-patient care by general practitioners for their own patients is clearly stated in the Dawson Report (1920). The Primary Health Centres envisaged were to provide a small number of beds and the equipment for observation, investigation and treatment of patients - giving "the advantages of organisation, hand-in-hand with the preservation of liberty of thought and action".

The desirability of general practitioners having access to beds, in which they may care for some of their own patients, has been a recurring theme in many reports since the inception of the National Health Service (Cohen Report, 1954; Platt Report, 1961; Hospital Plans for England and Wales, and Scotland, 1962; Porritt Report, 1962; Gillie Report, 1963; Brotherston Report, 1971).

The Porritt Report (1962) suggested that a general practitioner "should be encouraged to look after his own patients in hospital whenever he can do so efficiently". This reflected the Platt Report (1961) favouring "the continuation of experiments in the provision of general-practitioner wards in general hospitals" and visualising that general practitioners would continue to work in cottage hospitals, in which they were responsible for their own cases, with advice available from visiting consultants.

The Gillie Report (1963) suggested three types of general practitioner hospitals:

1. Cottage hospitals staffed solely by general practitioners.

2. Hospitals staffed mainly by specialists with help from general practitioners.

3. Hospitals staffed by general practitioners with visiting consultants.

The Report also pointed out that the general practitioner should assume responsibility for care as early in convalescence as possible after the need for specialist care had passed, and that in-patient care of terminal illness is usually within the province of the general practitioner.

The Hospital Plan for England and Wales (1962) saw the district general hospital as providing the great majority of beds and, as they developed, a large number of existing hospitals would cease to be needed. The proposed size of district general hospitals, the population to be served, the range of specialties which a district hospital would provide, were subsequently modified and amplified in the Bonham-Carter Report (1969).

The report on the Organisation of Group Practice (1970) discussed the relationship between hospital and group practice, and commented on the number of patients in hospital who do not require specialized facilities. It suggested that the term 'Community Nursing Unit' more adequately describes the function

of a cottage hospital, and that these should be established in proximity to group practice centres. The distinction between medical and nursing requirements was made by Meredith (1968) in his survey of hospital beds in Scotland, when he defined "acute" medical beds as including those for intensive therapy, for intensive nursing care, and for intermediate nursing care.

The Brotherston Report (1971) underlined the need for early examination of a number of subjects. Among these is "a study of the practical implications of making provision for general practitioners to care for their own patients in hospital including the beds needed for this purpose". The Report indicated that this involves study of the way in which beds should be used, the responsibility of the practitioner for the care of his patients, the training requirements for such practitioners, and ways in which the practitioner's work could be organised to allow time for care of his patients in hospital.

The Report recognised the great benefit to small communities of cottage hospitals staffed by general practitioners, and suggested that it was desirable to consider whether means could be found to extend these facilities to all general practitioners. However, the subsequent report "General Practitioners in the Hospital Service" (1973) did not recommend an extension of general practitioner hospitals to the large urban areas in the vicinity of district general hospitals - the value of the general practitioner hospital being in its contribution to

health care in rural areas as an integral part of the district general hospital services. These views are similar to those of the Bonham-Carter Report (1969) which saw no good case for retaining small hospitals located within easy reach of a district general hospital.

In North-East Scotland, the policy outlined in the Hospital Plan (1967) is for a central hospital complex in Aberdeen, providing a complete service, supported by the peripheral general practitioner hospitals. The general practitioner hospital in the more rural areas has a precise role and is not to be regarded as a general hospital in miniature. The role of the general practitioner hospital is defined in the Hospital Plan, as follows:

1. The conduct by general practitioners of confinements which are expected to be uncomplicated.

2. The short-term hospital care of patients within the province of general practitioners under nursing conditions superior to those which might be expected in the average home.

3. The provision of some long-stay beds.

4. The reception of patients in the early stages of convalescence after receiving specialist care at the main hospitals, thereby increasing the turnover of acute wards.

5./

5. A centre for the treatment of minor accidents and other casualties, and where more serious cases can be fitted for the journey to Aberdeen.

6. The provision of a medical centre where visiting specialists can hold out-patient clinics and be called in consultation by their general practitioner colleagues to the mutual advantage of both, as well as of their patients.

A proposal made by the North-Eastern Regional Hospital Board in 1973 to re-allocate 26 per cent of the general practitioner beds in the region to geriatric long-term care underlined the urgent need for a re-appraisal of the role of the general practitioner beds in the region. The Regional Hospital Board's proposals arose from their examination of the distribution of hospital beds in the North-East against the background of the planned availability in 1975 of some 400 additional beds in the Phase II Development under construction at Aberdeen Royal Infirmary.

In summary, the consensus of official opinion is that general practitioners, particularly in rural areas, should have access to beds in which they can treat some of their own patients. The value of the general practitioner bed is its contribution to health care as an integral part of the general hospital services.

LITERATURE

The numerous studies of general practitioners and their use of hospital can broadly be divided into two groups - the

survey of the use made of existing hospital beds and facilities, and, secondly, the suitability of patients for general practitioner care in hospital.

The threatened closure of general practitioner hospital beds in the 1960's led to a number of studies reviewing their role. The publication of the "Hospital Plan for England and Wales" (1962) showed that about 500 general practitioners in South-East England would either lose their access to hospital beds or have it modified. A questionnaire sent out by the South-East England Faculty, Royal College of General Practitioners (1963) showed that 72 per cent of these doctors desired access to medical and maternity beds.

A later survey by Oxford Regional Hospital Board (1969) showed that, whereas 68 per cent of general practitioners were interested in being integrated into a hospital team, 70 per cent were not interested in total clinical control of "acute" beds. Similar results have been reported by Warren (1962), by Wessex Regional Hospital Board (1964), by Wilkinson (1970), and by Evans and McEwan (1969).

Various aspects of the use of hospitals by general practitioners have been considered - the admission rate of in-patients, the type of patient and reason for admission, and the suitability of the patient for a cottage hospital.

A number of studies have been made which reflect the variations between doctors in their use of hospitals. An indication of the variety of referral rates may be seen from the following:

| | | |
|---|---|---|
| Hopkins | (1956) = | 25.0% |
| Fry | (1959) = | 8.5% |
| Handfield-Jones | (1959) = | 15.0% |
| Scott *et al.* | (1960) = | 20.9% |
| Bloor | (1962) = | 8.1% |
| Carmichael *et al.* | (1963) = | 9.5% |
| Wood | (1964) = | 11.6% |

In these studies the numerator and denominator are often not defined, which makes comparison difficult. A very good study by Morrell *et al.* (1971) of three doctors in a group practice showed the referral rates per 1000 consultations for the three doctors were 15.4, 22.4 and 27.3 respectively and these differences remained even when adjusted for age, sex, social class and diagnosis of the patient. They conclude that a doctor's decision to refer a patient to hospital reflects his perception of the need for hospital care which may, in some cases, be related to his intolerance of diagnostic uncertainty.

Another study of hospital usage by a group practice (Evans and McBride, 1968) suggested that older doctors had older patients and therefore a higher rate of referral to hospital.

Their over-all referral rate was 6.2 per cent per year, which was similar to the Thames Valley survey (Starey, 1961) where the average referral rate was 7.6 per cent with a range of 2.0 to 17.3 per cent of patients on the practice list referred per year by 36 doctors. This range would indicate the need for caution in interpreting the variation between individual doctors.

In the new town of Livingston, where there is a young population and close integration of general practice and hospital, Barber (1971) reports a referral rate of 3.6 per cent of doctor-patient contacts. Similar rates are reported from differing practices - 3.5 per cent by Hull (1969), 3.5 per cent by Burrowes (1971), 2.5 per cent by Morrell (1971). These un-adjusted rates are difficult to compare with any certainty.

A survey of the reports from single doctors or single group practices only emphasises the individualistic character of general practitioners and the wide variation in their methods of patient care. As Lees and Cooper (1963) observed in their analysis of studies of general practice, many of the studies had a definite objective - notably work of the general practitioner and morbidity - but a number were multi-purpose or purely descriptive (Wood, 1964; Brown, 1969; Burrowes, 1971; Kyle, 1971; Wilson, 1971). In their review of the literature on general practitioner hospital beds, Israel and Draper (1971) commented on the lack of information on the severity of illness or its outcome for those treated in general practitioner beds.

Several reports have classified the reason for referral, and in general these fall into three groups:

(i) for second opinion (referred to by Fry (1959) as "doctor stuck";

(ii) for investigation;

(iii) for treatment.

Again, there is a wide range of results depending on definition and reflecting the attitude of the doctor and the area of his practice:

| | Hopkins (1956) | Fry (1959) | Wood (1964) | Wilson (1971) |
|---|---|---|---|---|
| Second opinion | 15% | 18% | 46% | 31% |
| Investigation | 31% | 69% | 30% | 34% |
| Treatment | 54% | 13% | 24% | 35% |

The first group includes cases where the doctor does not know the diagnosis and those where he does but wants advice; the second group includes special investigations and those which the doctor could arrange if access were available. Forsyth and Logan (1960) found that 30 per cent of patients referred to departments of general medicine had no physical disease diagnosed, and this possibly reflects the important function of reassuring the general practitioner.

Ashford and Pearson (1970) in reporting a large study of demand for medical care met by general practice and hospitals in Exeter, showed that (i) the case load of the hospital out-patient departments is determined largely within general practice, and (ii) a large proportion of the admissions of hospital in-patients are preceded by hospital out-patient appointments. Although the pressure on hospital beds may be determined in general practice, Scott and Gilmore (1966) showed that the general practitioner makes relatively fewer demands on hospital out-patient services for those patients who make the greatest demand on the general practitioner, notably the young and the elderly.

There have been a number of multi-practice studies of note which have looked at various aspects of the relationship of general practitioners to hospitals. Starey (1961) studied the out-patient referral patterns of thirty general practitioners in Thames Valley. Among the aims of this study was an attempt to discover what happened to the patient after his first visit to out-patients, and it was shown that almost one-third were put on the waiting-list for admission, a finding similar to that of Gruer (1972) in the Scottish Border Counties. Only 7 per cent of the patients were referred because of pressure from the patient or his relatives, and only 5.3 per cent of patients were referred solely because the general practitioner had no access to diagnostic facilities. Forsyth and Logan (1968), studying out-

patient referrals in 11 groups of provincial hospitals in England and Wales, found wide variations in the rate of referral by general practitioners. Doctors who were in partnership tended to refer more patients, but the size of the practice had no influence.

The controversy over the future of general practitioner hospital beds in the 1960's, with the suggested concentration of all hospital development on the District General Hospital (Hospital Plan for England and Wales, 1962) was reviewed by the Chairman of the Oxford Regional Hospital Board (Schuster, 1961), who stated that "an adequate number of smaller hospitals served mainly by general practitioners should be retained in rural areas". The development of this concept has been fully documented by the Oxford Regional Hospital Board (1965). They showed that in a rural community four-fifths of the total in-patient and out-patient care during one year was provided by a cottage hospital situated 13 miles from each of two acute general hospitals. This included terminal care and patients admitted for convalescence from other hospitals. Oddie et al. (1971) have similarly reported a pilot trial in a Community Hospital with a defined role that is complementary to the District General Hospital. Both studies showed that, if the general practitioner beds had not existed, half the patients would have remained at home and half would have been admitted to the District General Hospital.

The East Birmingham Hospital general practitioner unit was opened in 1964 and has been described by Wilkinson (1968 and 1970). Less than half the doctors in the area use the unit. The patients that are admitted are acute medical ones limited to a stay of three weeks, and are predominantly patients with bronchitis or congestive cardiac failure. If the unit had not been available, it is estimated that 15 per cent of the patients would not have been referred for admission. About half the doctors using the unit sought consultant opinions on one or more occasions over a period of one year. In the Birmingham area Evans (1969, 1971) has carried out attitude surveys of groups of general practitioners which demonstrated a wish to treat their own patients in hospital, but only those, currently admitted, who are not in need of specialist care.

The use of a general practitioner ward in a District General Hospital has also been described by Barber et al. (1972), but in this project at Livingston the objectives are rather different, as they seek to exploit the opportunities in health services administration presented by a new town and a new District Hospital (Duncan, 1969).

In Tamworth, an acute general hospital is staffed by general practitioners and Smith and O'Donovan (1970) reported the admissions over one year. The commonest group of patients were those with respiratory diseases, followed by cardiovascular,

neurological and gastrointestinal diseases. Of individual conditions, the greatest number of admissions was for asthma. In just over 10 per cent of admissions by general practitioners the patient was transferred to another hospital.

Kyle (1971) reported a prospective study of a general practitioner hospital in Brecon run by five general practitioners with a list of 12,000 patients. He showed that the group practice in Brecon admitted 80 per cent of patients to their own beds and referred 20 per cent to other hospitals. It is pointed out that the over-all admission rate from the practice was 10 per cent of patients on the list, which is similar to the national average, and would suggest that beds were not misused in the general practitioner hospital.

General surveys have been made by Emrys-Roberts (1971) in his capacity as Chairman of the Association of General Practitioner Hospitals, and by Brown (1969) who found that most cottage hospitals were overloaded with long-term geriatric patients and chronic patients transferred from other hospitals.

A survey of general practitioners' care of their patients in hospital by the Department of Health and Social Security (Royal College of General Practitioners report, 1971) showed that few acutely ill medical patients were cared for by general practitioners, though they listed the types of patient they cared for as those with bronchitis, pneumonia, coronary

thrombosis, gastric and duodenal ulcer. The majority of patients actually cared for by general practitioners were the elderly, the convalescent, the terminally ill and patients admitted for social reasons. The care of long-stay patients is seen by Sutherland (1972) as being an important part of the role of the general practitioner hospital in patient care.

The categories of patients for whom the general practitioner could provide the necessary medical supervision in hospital have been summarized by Marsh (1965):

1. there is no-one to look after tham at home
2. they require nursing care and supervision
3. they need straightforward investigations
4. they need frequent laboratory tests
5. they require frequent parenteral therapy
6. they require special feeding
7. they are old as well as ill
8. their condition will respond only to hospital atmosphere.

Robinson (1973),in his detailed census and survey of the present use of general practitioner beds in the South-East Metropolitan Region, stated, "So far as can be discovered, there have been no valid comparative trials between practices or areas to compare measurable parameters where access to general

practitioner beds is possible and where it is not". The need for very careful study is emphasised by Israel and Draper (1971) and Oddie et al. (1971), who concluded that it is impossible to base conclusions on simple descriptive studies.

In a review of the literature, the second major group of studies are those relating to the suitability of patients for general practitioner care in hospital.

There have been a number of quantitative and qualitative studies of defined populations to determine hospital use. Palmer et al. (1969) carried out a community and hospital study of a 10 per cent sample of the population of North London. This showed that, of the population over 15 years of age, about 18 per cent had attended hospital in the previous year (13 per cent as out-patients, 1 per cent as in-patients and 4 per cent as both). They found that older male patients used hospitals more than younger men; the highest users among women were those in the child-bearing years; and more use was made of hospitals by the lower social classes.

Clarke and Mulholland (1973) carried out a study of the use of general practitioner beds in a defined population in Farnham and Frimley and commented on the considerable problems of the measurement of hospital use. Checking the returns made by the general practitioners showed that the recording was seriously incomplete, only half the immediate admissions were recorded.

When using a patient questionnaire to collect information on the use of hospitals by a defined population, Palmer et al. (1969) showed a tendency to over-report in-patient experience, while other studies found that patients tended to under-report in-patient experience by about 10 per cent.

In an interesting comparative study by Mackintosh et al. (1961) a group of hospital physicians assessed the medical needs for all in-patients in Birmingham hospitals and concluded that 4.7 per cent had insufficient medical grounds for admission. They then compared their findings on a sample of 158 patients with those of a general practitioner (Dr. D.L. Crombie). The physicians assessed 3.8 per cent as unnecessary admissions and the general practitioner 22.2 per cent. On further examining the difference in the two assessments, complex home circumstances were found in half of these patients, but in the other half (9 per cent of sample) the physicians did not agree with the general practitioner's assessment.

Bloor (1962) attempted a critical review of diagnosis by dividing his referrals into those where the general practitioner was correct, those where the specialist agreed but both were wrong, and those where the general practitioner was wrong. The commonest cause of failure was misinterpretation of physical signs. In a study of long-stay patients in acute medical wards, Sutherland (1972) showed that the patient's age, diagnosis and re-admission were important variables in determining the place and duration in in-patient treatment.

Winch and Balme (1965) assessed the patients in two medical wards each week and concluded that 65 per cent of them could have been looked after entirely by general practitioners. However, they do conclude by saying that "well-trained young general practitioners could supervise the great majority of patients admitted to ordinary acute medical wards ....assuming consultant opinions to be readily available".

A study of acute admissions to medical beds in the Dundee area (Torrance et al., 1972) confirmed the view that 25 per cent of medical admissions do not require the full facilities of a general medical ward. Many of these admissions might be avoided by strengthening the domiciliary team. The authors suggest that general practitioners operate within the restrictions of the existing arrangements and not to the best of their capabilities.

On a larger scale, Meredith (1968) qualitatively analysed a 30 per cent sample of "acute" beds in Scotland to estimate bed need, bed usage and the categories of patient. The survey showed that 36 per cent of patients in district general hospitals and 30 per cent of patients in teaching hospitals could have been accommodated in purpose-designed supporting bed units. The uneconomic use of expensive specialised hospital facilities has been commented on by several writers. Crombie and Cross (1959) estimated that a quarter of the patients in a Birmingham

hospital had no diagnostic or therapeutic requirement at hospital level. Similarly, Forsyth and Logan (1960) in Barrow reported that 25 per cent of male and 40 per cent of female patients did not require to be in a general hospital bed; Lees and Biddulph (1968) reported 28 per cent as questionably requiring hospital care; and the South-East England Faculty, Royal College of General Practitioners (1967) in a study of 5788 patients admitted in one year, suggested that half of them could have been treated in general practitioner beds. Nearly half of these patients had circulatory, respiratory or digestive disorders. Forsyth and Logan (1960) point out that the case-load of a hospital is determined by the general practitioner's decision to admit to hospital, and they suggest that there is a failure to integrate the hospital and domiciliary services by general practitioners.

Reporting on the work of a cottage hospital in a rural community in the Oxford Region, Steel (1965) showed that four-fifths of all in-patient care was undertaken completely in the cottage hospital, while many patients who were treated in other hospitals returned to the cottage hospital for convalescence. A similar view was expressed by Weston Smith (1973) when 85 per cent of patients were assessed as being suitable for care in a general practitioner hospital. In both studies consultant opinion on a patient was readily available

Loudon (1971; 1972) has shown that the great shortage of medical and surgical beds in the Radcliffe Infirmary, Oxford

would have been even more acute if beds in the surrounding cottage hospitals had not been available. A survey of patients in the Radcliffe Infirmary showed that alternative care in a general practitioner bed would have been possible for one-third of medical and surgical patients. To a much lesser extent the opposite applied, and Smith et al. (1973) found that 2.8 per cent of patients in Tamworth were wrongly placed and should have been in a district hospital.

From these and other similar studies it is seen that general practitioner beds in cottage hospitals, where they exist, do perform a function in relieving acute medical beds of the primary care of specified groups of patients and also provide convalescent and terminal care. However, the majority of studies are descriptive of the use being made of individual general practitioner hospitals and are not related to the over-all needs of the population at risk, nor to the planned role of the general practitioner beds.

Comment on the optimum ratio for the provision of general practitioner beds is notably lacking in official publications or individual reports. Under very different circumstances Burdett (1877) suggested 1 bed for every 1000 inhabitants in rural areas as "the standard laid down by the best authorities". The Oxford Regional Hospital Board estimated (Loudon, 1972) that out of a total of seven or eight beds of all categories for every thousand patients at risk, two should be in community hospitals. The same ratio is quoted by Oddie et al.

(1971) who add that "very careful study is needed before deciding what role, if any, the community hospital should play". The existing provision of general practitioner beds in cottage hospitals is historically determined rather than planned, the variations often depending on the enthusiasm of the local community.

SUMMARY

The official policy is that general practitioners should be encouraged to participate in the hospital care of their own patients. In both the Brotherston Report, "Doctors in an Integrated Health Service" (1971) and in the companion report, "General Practitioners in the Hospital Service" (1973) repeated reference is made to the need to reassociate the general practitioner with hospital care. A considerable number of general practitioners desire the opportunity to treat suitable patients of their own in hospital, and the policy that general practitioner hospital beds should be available for in-patient care is generally accepted.

There is a considerable volume of information on the present use made by general practitioners of hospital beds, and the studies of general practitioner hospitals show that they have more than their share of the less acutely ill medical patients.

It is surprising to find some glaring omissions in the available information on general practitioner hospitals. There appears to be no official figure for general practitioner bed

requirement comparable to the Scottish Home and Health Department's standard norm for geriatric beds of 1.5 beds per 100 population over 65 years. None of the studies set out to estimate an optimum bed ratio for general practitioner beds in cottage hospitals.

There is no information available on the comparative use being made of hospital beds by different populations, with and without cottage hospital facilities. This would reflect the true effect of the availability of cottage hospital beds on the over-all pattern of in-patient care in an area. There has been little specific study of the severity of illness, its outcome or the benefits of treatment in a cottage hospital when compared with a general hospital.

In the context of the situation in North-East Scotland the policy of the Regional Hospital Board, and its successor the Grampian Health Board, would appear to be contrary to stated official policies. However, it is first necessary to analyse the role of the existing general practitioner beds and to determine an appropriate rate for the provision of such beds. Evidence of lack of uniformity in use would suggest that a problem exists and further studies would be necessary to determine whether or not the existing beds are excessive, or alternatively not meeting the demand. Such studies are

necessary before concluding whether or not a reduction of general practitioner beds is justified and in the best interests of the patients and doctors concerned.

The lack of comparative studies between practices where access to general practitioner beds is possible and where it is not, prompted the present study. The presence of 16 cottage hospitals in North-East Scotland made it possible to select practices and compare measureable parameters in the use made of hospital beds. On the basis of this information it is also possible to determine the optimum bed ratio for the provision of general practitioner beds, a statistic that is necessary for the future planning of medical services.

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# CHAPTER 2

# AIMS AND METHODS

## AIMS AND METHODS

The aim of this study is to examine the referral of patients for admission to cottage hospitals and to general hospitals by rural general practitioners. The study is designed to help to determine a rational basis for the provision of general practitioner beds in rural areas, and includes an attempt to define the types of patient best suited to care in such beds.

### HYPOTHESIS

1. In an area without cottage hospital facilities the general practitioner has the option of admitting patients to the central hospital, or treating them at home.

2. In an area with a cottage hospital the general practitioner has the additional option of admitting to the cottage hospital.

3. If the over-all in-patient referral rates are the same in the two areas, it is postulated that the patients admitted to the cottage hospital represent a screening off from the central hospital. Secondly, it is postulated that this group of patients are the equivalent of a similar group of patients from the area without cottage hospital facilities, who may be unnecessarily occupying specialized central hospital beds.

4. If the over-all in-patient referral rates are higher in the area with cottage hospital facilities, it is further postulated that the excess of patients admitted represent a group of patients who, in the area without such facilities, are receiving extra-hospital care which may not meet their needs.

PRESENTATION

The study will be presented in two sections:

1. An analysis of the use of all cottage hospital beds.

   This will achieve the first aim of determining a rational basis for the provision of general practitioner beds in rural areas.

2. An analysis of all hospital referrals by two groups of general practitioners.

   This will achieve the second aim of defining the categories of patients best suited to care in cottage hospital beds, and will also test and support the hypothesis stated above.

DEFINITIONS

The definitions used in this study are those recommended by the Research Unit of the Royal College of General Practitioners (1973) for the following terms:

"Referral is made when resources outside any one doctor's ability, whether in or outside the practice, are used on the patient's behalf".

"Sources of help may be situated at and patients sent to -

i. General or special hospitals as an in-patient (admission) or an out-patient.

ii. General practitioner hospitals (cottage hospitals)."

"Admissions to hospital may be -

i. Direct, when the practitioner contacts the hospital - the choice is the doctor's.

ii. Indirect, when a patient is admitted from the waiting list, when self-referred, or referred by police or accident services in an emergency, without the intervention of the general practitioner."

In the cottage hospitals beds are designated as:

"General Practitioner (other than obstetric)"

"Obstetric - G.P."

"Geriatric"

"General surgery".

POPULATION

The investigation was divided into two parts. In the first, an analysis was made of all patients admitted to any of the general practitioner beds in the North-East Region during 1972. This was done from the Scottish Morbidity Return (S.M.R.1) based on the hospital discharge record.

In the second part, there was a prospective study of two defined populations of patients. The two populations of patients for this study were:

1. A study population of patients whose general practitioners had access to beds in a cottage hospital for treating their own patients, in addition to referral to a general hospital.

2. A control population of patients whose general practitioners did not have access to cottage hospital beds, when all patients requiring in-patient care would be referred to a general hospital.

In defining the study population it was desirable to select cottage hospitals in which the activity of the unit, in terms of numbers of patients, was typical of cottage hospitals in the North-Eastern Region. In order to achieve this, the statistics for "Cases treated per bed per year" were obtained from the North-Eastern Health Services Research and Intelligence Unit's Digest of Hospital Statistics for 1961-71. The regional average was 12 cases treated per bed per year for all general practitioner beds, other than obstetrics. Five cottage hospitals were found to come within the range of 10 - 14 cases treated per bed per year - those at Insch, Inverurie, Keith, Huntly and Elgin. Huntly and Elgin were rejected on the grounds of having rather different patterns of care - Huntly provides surgical facilities and at Elgin there is a Consultant Physician.

SIZE OF STUDY POPULATION

The size of the prospective study was determined on the basis of the expected in-patient referrals to cottage hospitals.

If the population of cottage hospital patients was divided into two groups and examined for two variables, then 160 patients would be required to have, if evenly distributed, an expected 20 patients in each section of a 2 x 2 analysis.

From the Regional Digest of Hospital Statistics (1971) the total discharge rate for all patients was 140 per 1000 population in the North-East Region. For general practitioner non-obstetric beds the discharge rate was calculated as 9 per 1000. In order to achieve the objective of 160 patients admitted to cottage hospital beds in one year, a general practice population of 14,400 would be the minimum requirement for the study group.

The study population was taken as all the patients registered with the practices at Keith and Insch and those registered with one of the practices in Inverurie. For the control population, three group practices were selected in which the age/sex structure of the patients registered with the practice were similar to those in the study group and the distances from Aberdeen were similar to the study practices. The practices selected were at Alford, Banchory and Ellon.

The combined total of the study population and the control population was just under 34,000 patients.

PERIOD OF STUDY

The period of study was from 1st October 1972 to 30th September 1973. The study was continuous throughout the period.

In order to complete the study, details were also obtained of all patients from the practices who were discharged from any hospital in the region during 1972 and 1973. This information was made available from the hospital discharge forms (SMR.1) with the permission of the general practitioner and the hospital specialists concerned.

ENTRY TO STUDY

A patient was defined as entering the study on the day on which he was admitted to hospital as an in-patient. Originally it was intended that the general practitioner would initiate this information, but a small pilot study revealed a number of difficulties and consequently notification of a patient's admission to hospital was obtained from the Records Department of the hospital.

All general hospital admissions were included in the study. Admissions of obstetric and geriatric patients were excluded, as beds for these patients are separately designated in cottage hospitals. Similarly, psychiatric patients were excluded as not being involved in the use of general practitioner beds in cottage hospitals.

For patients admitted to Aberdeen hospitals all general medical, medical specialty and urological patients were included. General surgical patients were included on the assumption that some would not require surgical intervention and might have been

admitted to a cottage hospital for observation or medical treatment. On the other hand, all patients admitted to specialist surgical units (gynaecology, neurosurgery, thoracic surgery, plastic surgery, dental surgery, orthopaedic surgery and E.N.T. surgery) were excluded on the assumption that there would not be corresponding patients in a cottage hospital.

INFORMATION HANDLING

The method for collecting information for the study was, as follows:

1. Aberdeen Royal Infirmary Records Department supplied a record card and an adhesive label each day for all in-patient admissions to Aberdeen hospitals. The information supplied included identification of patient, general practitioner and hospital unit.

2. From the above record cards those patients referred by general practitioners participating in the study were selected. All rejected cards were returned to the Records Department for destruction.

3. The selected record cards were further sorted into those patients admitted to hospital units involved in the study and those excluded - records of the latter group were filed separately.

4. The records remaining were those of selected general practitioners' patients who had been admitted to the selected units. For cottage hospitals all admissions were included and the information collected weekly.

5. The adhesive identification label was affixed to a questionnaire which was sent to the patient's own general practitioner. The questionnaires were despatched with a reply-paid envelope twice a week.

6. At monthly intervals the patient's unit number and date of admission were submitted to the Research and Intelligence Unit for a search of the computer file of discharge records. The computer-printout indicated those patients who had been discharged from hospital and provided an abstract of the hospital discharge record (SMR.1).

7. At two-monthly intervals the list of discharged patients was checked and, after removing children under 15 years of age and patients known to have died, was sent to the general practitioner concerned to obtain his permission to approach these patients.

8. When the amended list was returned by the general practitioner a questionnaire form with a reply-paid envelope was sent to the patient.

9. The general practitioner and patient questionnaires were coded manually; the computer printout of SMR.1 information also automatically punched an 80-column card.

10. The record cards, initially prepared by the Records Department were used as a manual index and were edge-punched on completion of each stage of the information process - questionnaire to doctor; questionnaire returned; patient's unit number to computer; computer printout; patient list checked; questionnaire sent to patient; questionnaire returned; coding completed.

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# CHAPTER 3

## BACKGROUND INFORMATION

# BACKGROUND INFORMATION

## THE AREA

The north-east of Scotland contains the counties of Aberdeen, Kincardine, Moray, Banff and Aberdeen City, which comprises the Grampian Area with a provisional resident population of 436,598 (1971 Census).

The population is concentrated in two main areas:

Aberdeen and district (15 miles radius) = 240,000 (55%)

Elgin and district (15 miles radius) = 66,000 (15%)

There is a further concentration in the Fraserburgh and Peterhead area, with a population of about 44,000 (10%). This is an area with a potential for future growth as the oil industry develops. The remaining 20% of the population is in small towns and sparsely populated rural areas.

There was a steady growth in the population of the north-east of Scotland during the last century, but since 1901 the population has decreased. The region accounts for 8 per cent of the population of Scotland compared with 14 per cent a hundred years ago. In the 1961-71 period there was an over-all decrease in population of about 2000 individuals. In the landward areas there has been a marked depopulation, with an increased population in the districts surrounding Aberdeen City and in the county of Moray. The coastal population has remained fairly static in size.

POLICIES

In the Hospital Plan (1967) of the North-Eastern Regional Hospital Board the role of the general practitioner hospitals is not regarded as that of a miniature general hospital. The precise role is defined, as follows:

"1. The conduct by general practitioners of confinements which are expected to be uncomplicated.

2. The short-term hospital care of patients within the province of general practitioners under nursing conditions superior to those which might be expected in the average home.

3. The provision of some long-stay beds.

4. The reception of patients in the early stages of convalescence after receiving specialist care at the main hospitals, thereby increasing the turnover of acute wards.

5. A centre for the treatment of minor accidents and other casualties, and where more serious cases can be fitted for the journey to Aberdeen

6. The provision of a medical centre where visiting specialists can hold out-patient clinics and be called in consultation by their general practitioner colleagues to the mutual advantage of both as well as to their patients."

It is suggested that general practitioner hospitals should be within reasonable reach of a minimum population of 5,000 in order to fulfil the above role.

COTTAGE HOSPITALS

This area has more general practitioner beds than any other area in Scotland. There are 16 cottage hospitals with a total of 352 general beds (i.e. excluding obstetric beds) which gives a rate of 80 per 100,000, as compared to 18 per 100,000 for the whole of Scotland.

Good use is made of these cottage hospitals, with an 81 per cent bed occupancy (i.e. occupied bed days as a percentage of the available staffed bed days) - this may be compared with 84 per cent occupancy for general medical units in Aberdeen hospitals.

Twelve of the cottage hospitals fulfil the functions outlined in the Hospital Plan (1967). They are the following:

Arduthie Hospital, Stonehaven
Peterhead Cottage Hospital
Chalmers Hospital, Banff
Inverurie Hospital
Jubilee Hospital, Huntly
Seafield Hospital, Buckie
Turner Memorial Hospital, Keith
Insch and District War Memorial Hospital
Turriff Cottage Hospital
Stephen Cottage Hospital, Dufftown
Leanchoil Hospital, Forres
Ian Charles Hospital, Grantown-on-Spey.

The details of the three cottage hospitals selected for this study are -

(1) Turner Memorial Hospital, Keith

(all figures are for 1967-71)

| | |
|---|---|
| General beds | = 23 |
| Annual discharges and deaths | = 226 |
| Bed occupancy | = 85% |
| Average days stay | = 32 |
| Cases treated per bed per year | = 10 |
| Turnover interval | = 6 days |
| (T.I. is the average time a bed is unoccupied between patients.) | |
| Distance to Aberdeen | = 50 miles. |

History : The hospital was opened on 31st December, 1880 and named after the late Dr. Robert Turner. As built, it consisted of four wards, two fever and two general, with four beds in each. Two further wards were added in 1893. In 1926 a major reconstruction of the hospital was carried out including provision of operating theatre, staff accommodation, etc.

(2) Insch and District War Memorial Hospital

| | |
|---|---|
| General beds | = 10 (increased to 11 in 1973) |
| Annual discharges and deaths | = 102 |
| Bed occupancy | = 90% |
| Average days stay | = 32 |
| Cases treated per bed per year | = 10 |
| Turnover interval | = 4 days |
| Distance to Aberdeen | = 23 miles |

History : After the 1914-18 War, the people of Insch and district decided to erect and endow a hospital as a War Memorial. In 1922 the hospital was opened, with 4 beds for male patients, 4 beds for female patients, 3 beds for maternity patients and an operating theatre - it is of interest that at this time Aberdeen had 15 beds for

maternity patients. In 1933 a new Nurses' Home was built, allowing the previous staff accommodation to be used for patients, so that there were now 14 beds.

(3) Inverurie Hospital

| | |
|---|---|
| General beds | = 22 (increased to 24 in 1973) |
| Annual discharges and deaths | = 256 |
| Bed occupancy | = 70% |
| Average days stay | = 22 |
| Cases treated per bed per year | = 11 |
| Turnover interval | = 10 days |
| Distance to Aberdeen | = 16 miles |

1a 6804
= 3·23/1000

History : A hospital was in existence before the Reformation and is recorded in 1651 in an Act of the General Assembly of the Church of Scotland. In 1897 a 10-bedded isolation hospital was built, and the present hospital replaced it in 1940. The decreasing numbers of patients with tuberculosis and infectious diseases led to the release of these beds in 1958, with the subsequent formation of a general practitioner unit, a geriatric unit and a maternity unit.

ABERDEEN HOSPITALS

The Aberdeen hospitals involved in this study were Aberdeen Royal Infirmary (699 beds), Royal Aberdeen Children's Hospital (185 beds), Woodend General Hospital (364 beds) and the City Hospital (209 beds).

The in-patient utilisation of these 1457 beds by specialty in 1971 (Regional Digest of Hospital Statistics, 1971) was, as follows:

| | MEDICINE | | SURGERY | |
|---|---|---|---|---|
| | General | Paediatric | General | Paediatric |
| Daily average beds available | 384 | 98 | 239 | 36 |
| Annual discharges and deaths | 7780 | 2226 | 8065 | 1534 |
| % Occupancy | 84 | 74 | 80 | 53 |
| Days stay | 15 | 12 | 9 | 5 |
| Cases treated per bed per year | 20 | 24 | 34 | 42 |
| Turnover Interval (days) | 3 | 4 | 2 | 4 |

THE PRACTICES

The six practices comprised a study population of 18,066 patients on the lists of 10 general practitioners who have access to general practitioner beds, and a control population of 15,857 patients on the lists of 10 general practitioners who do not have access to hospital beds for treating their own patients.

A. Practices WITH cottage hospital facilities

(1) Keith practice

A group practice of 4 doctors practising from a Health Centre which is attached to the Cottage Hospital. The doctors have been qualified for 38, 38, 33 and 6 years and are all graduates of Aberdeen University.

The structure of the practice is, as follows:

| Age group (years) | Males | Females | Total |
|---|---|---|---|
| 0 - 4 | 283 ( 3.8%) | 288 ( 3.9%) | 571 ( 7.7%) |
| 5 - 14 | 668 ( 9.0%) | 645 ( 8.7%) | 1131 (17.7%) |
| 15 - 44 | 1408 (19.0%) | 1450 (19.6%) | 2858 (38.6%) |
| 45 - 64 | 832 (11.2%) | 803 (10.8%) | 1635 (22.1%) |
| 65 + | 410 ( 5.5%) | 617 ( 8.3%) | 1027 (13.9%) |
| TOTAL: | 3601 (48.6%) | 3803 (51.4%) | 7404 (100 %) |

(2) Insch practice

A 2-doctor practice, with part-time assistance from a married woman doctor. The doctors have been 34 and 28 years qualified and are graduates of Aberdeen University.

The structure of the practice is, as follows

| Age group (years) | Males | Females | Total |
|---|---|---|---|
| 0 - 4 | 135 ( 3.4%) | 120 ( 3.0%) | 255 ( 6.5%) |
| 5 - 14 | 325 ( 8.2%) | 276 ( 7.0%) | 601 (15.2%) |
| 15 - 44 | 771 (19.5%) | 700 (17.7%) | 1471 (37.2%) |
| 45 - 64 | 464 (11.7%) | 509 (12.9%) | 973 (24.6%) |
| 65 + | 286 ( 7.2%) | 368 ( 9.3%) | 654 (16.5%) |
| TOTAL: | 1981 (50.1%) | 1973 (49.9%) | 3954 (100 %) |

(3) Inverurie practice

A 4-doctor practice, two of whom are women, practising from a Health Centre about 1 mile from the Cottage Hospital. The doctors have been qualified for 30, 24, 20, and 20 years. One is a graduate of Glasgow and the others are Aberdeen University graduates. There is a trainee-assistant in the practice.

The structure of the practice is, as follows:

| Age group (years) | Males | Females | Total |
|---|---|---|---|
| 0 - 4 | 280 ( 4.1%) | 257 ( 3.8%) | 537 ( 7.9%) |
| 5 - 14 | 602 ( 8.9%) | 554 ( 8.1%) | 1156 ( 17.0%) |
| 15 - 44 | 1252 (18.4%) | 1309 (19.2%) | 2561 (37.6%) |
| 45 - 64 | 740 (10.9%) | 789 (11.6%) | 1529 (22.5%) |
| 65 + | 425 ( 6.3%) | 596 ( 8.8%) | 1021 (15.0%) |
| TOTAL: | 3299 (48.5%) | 3505 (51.5%) | 6804 (100%) |

B. Practices WITHOUT cottage hospital facilities

(4) Ellon practice

A 4-doctor group practice with purpose-built surgery premises. The doctors have been qualified for 35, 14, 9 and 6 years. The senior partner is a graduate of Glasgow University, and the other three are Aberdeen graduates.

The structure of the practice is, as follows:

| Age group (years) | Males | Females | Total |
|---|---|---|---|
| 0 - 4 | 312 ( 4.6%) | 292 ( 4.3%) | 604 ( 8.8%) |
| 5 - 14 | 559 ( 8.2%) | 590 ( 8.6%) | 1149 (16.8%) |
| 15 - 44 | 1405 (20.5%) | 1365 (19.9%) | 2770 (40.5%) |
| 45 - 64 | 713 (10.4%) | 762 (11.1%) | 1475 (21.6%) |
| 65 + | 364 ( 5.3%) | 484 ( 7.1%) | 848 (12.4%) |
| TOTAL: | 3353 (49.0%) | 3493 (51.0%) | 6846 (100%) |

(5) Banchory practice

A 4-doctor group practice with purpose adapted surgery premises. The doctors have been qualified for 29, 8, 8 and 4 years - they are all graduates of Aberdeen University.

The structure of the practice is, as follows:

| Age group (years) | Males | Females | Total |
|---|---|---|---|
| 0 - 4 | 223 ( 3.8%) | 191 ( 3.3%) | 414 ( 7.1%) |
| 5 - 14 | 459 ( 7.8%) | 455 ( 7.8%) | 914 (15.6%) |
| 15 - 44 | 1029 (17.5%) | 1078 (18.4%) | 2107 (35.9%) |
| 45 - 64 | 668 (11.3%) | 743 (12.7%) | 1411 (24.0%) |
| 65 + | 442 ( 7.5%) | 586 (10.0%) | 1028 (17.5%) |
| TOTAL: | 2821 (48.1%) | 3053 (52.0%) | 5874 (100%) |

(6) Alford practice

A 2-doctor practice with a surgery in the house of one partner. Both doctors qualified 24 years ago at Aberdeen University.

The structure of the practice is, as follows:

| Age group (years) | Males | Females | Total |
|---|---|---|---|
| 0 - 4 | 122 ( 3.9%) | 105 ( 3.4%) | 227 ( 7.2%) |
| 5 - 14 | 272 ( 8.7%) | 252 ( 8.0%) | 524 (16.7%) |
| 15 - 44 | 620 (19.8%) | 573 (18.3%) | 1193 (38.0%) |
| 45 - 64 | 347 (11.1%) | 354 (11.3%) | 701 (22.4%) |
| 65 + | 235 ( 7.5%) | 257 ( 8.2%) | 492 (15.7%) |
| TOTAL: | 1596 (50.9%) | 1541 (49.1%) | 3137 (100 %) |

(7) Combined practices

The practices at Keith, Insch and Inverurie comprised the study population, and those at Ellon, Banchory and Alford were the control population.

| Age group (years) | KEITH, INSCH and INVERURIE | ELLON, BANCHORY and ALFORD |
|---|---|---|
| 0 - 4 | 1363 ( 7.5%) | 1245 ( 7.9%) |
| 5 - 14 | 3070 (16.9%) | 2587 (16.3%) |
| 15 - 44 | 6890 (37.9%) | 6070 (38.3%) |
| 45 - 64 | 4137 (22.8%) | 3587 (22.6%) |
| 65 + | 2702 (14.9%) | 2368 (14.9%) |
| TOTAL: | 18,162 (100 %) | 15,857 (100 %) |

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# SECTION 2

## GENERAL PRACTITIONER HOSPITAL BEDS

# CHAPTER 4

## COTTAGE HOSPITAL DISCHARGES

# COTTAGE HOSPITAL DISCHARGES

## INTRODUCTION

In the first part of the study an analysis was made of all patients discharged during 1972 from general practitioner non-obstetric beds in cottage hospitals in North-East Scotland.

Complete information was available for each patient from the hospital discharge summary sheet and therefore the analysis was made on this rather than on the less complete information available when a patient was admitted to hospital. Only 14 patients, out of a total of 3363, were in hospital longer than one year and, therefore, the terms "discharge" and "discharge rate" were taken as equivalent to the more familiar "admission" and "admission rate".

The results presented in this section will be an analysis of the characteristics of the patients treated in the cottage hospitals (Chapter 4), and from the same information rates will be calculated for three practice populations (Chapter 5). The possibility of the needs of some patients not being met by the existing hospital beds will be considered (Chapter 6). Finally, a proposal will be made for a rational basis for the provision of general practitioner non-obstetric beds (Chapter 7).

There are 16 cottage hospitals with a total of 352 general practitioner non-obstetric beds. Of these 13 are general practitioner hospitals with maternity units, and five of

them have facilities for limited surgery. Three general practitioner hospitals have some long-stay patients, but no maternity or surgery. Though not involved in this study, there are a further three general-practitioner-staffed long-stay units with small turnover, and two general practitioner maternity units doing normal midwifery only.

METHOD

With the permission of the Medical Staff Committee of the Aberdeen Hospitals and the Local Medical Committee of Aberdeen and Kincardine, and Banff, Moray and Nairn, access was obtained to the information held on computer file. This information is coded from the discharge summary sheet (SMR.1) of the hospital in-patient records. An SMR.1 form is prepared for every patient discharged from a hospital bed - this uncludes discharge home, discharge to another hospital, transfer to other specialty in same hospital, or death. There are thirty-four listed hospital divisions or units from which a patient may be discharged (Appendix II), the divisions coinciding with the list of specialties on the revised Form STAT/H.S.10. The code number entered is that of the unit in which the patient was actually located at the time of discharge.

A computer search was made for all patients with a discharge code number 32 - this being the code for "General Practitioner (other than obstetric)" unit on discharge.

RESULTS

There was a total of 3363 discharges from general practitioner non-obstetric beds in cottage hospitals in North-East Scotland during 1972.

AGE AND SEX (Table 1)

Just over half (52 per cent) of these discharges were patients over the age of 65 years. Only a small number of discharges (4 per cent) were of patients under 15 years of age, the corresponding figure for discharges from general hospitals in Aberdeen being 11 per cent. The remaining 44 per cent of patients were aged between 15 and 64 years. When the discharges were examined by ten-year age groups, there was seen to be a gradually increasing number of discharges over the first four decades, and then quite a steep increase in the number of discharges in the 55 to 64 year-old age group. This increase was maintained with increasing age.

The small over-all preponderance of female patients discharged obscures differences in the ratio in different age groups. In the 15 - 44 year-old age group there was a considerable excess of female patients; in the 45 - 64 year-old age group there was virtually no difference between the sexes; finally, in the over 65 year-old age group there was again a marked preponderance of female patients.

TABLE 1

COTTAGE HOSPITAL DISCHARGES - 1972

All cottage hospitals N.E. Scotland - G.P. non-obstetric beds

AGE AND SEX

| Age Group (years) | Male | Female | Total |
|---|---|---|---|
| 0 - 4 | 40 | 34 | 74 |
| 5 - 14 | 44 | 31 | 75 |
| 15 - 24 | 87 | 121 | 208 |
| 25 - 34 | 84 | 157 | 241 |
| 35 - 44 | 89 | 161 | 250 |
| 45 - 54 | 144 | 148 | 292 |
| 55 - 64 | 249 | 233 | 482 |
| 65 - 74 | 365 | 373 | 738 |
| 75 + | 391 | 612 | 1003 |
| TOTAL: | 1493 | 1870 | 3363 |
| | | | |
| 0 - 14 | 84 | 65 | 149 |
| 15 - 44 | 260 | 439 | 699 |
| 45 - 64 | 393 | 381 | 774 |
| 65+ | 756 | 985 | 1741 |
| TOTAL: | 1493 | 1870 | 3363 |

MONTH OF ADMISSION (Table 2)

There was a monthly average of 280 discharges from all the cottage hospitals, with an absence of any marked seasonal trend. When the demand rises then it may be postulated that some patients are kept at home and others admitted to a general hospital rather than being admitted to a cottage hospital. It may also be postulated that when the demand is low, for example during the summer months, there may be a greater number of admissions for social reasons.

DURATION OF STAY (Table 3)

The majority of patients (78 per cent) under the age of 44 years were only in hospital for one week, and at 14 days over 90 per cent of this age group had been discharged from hospital. The duration of stay in the older age groups was somewhat different, and at 14 days over one-third of the 45 - 64 year-olds were still in hospital and over half the patients of 65 years or more remained in hospital. This emphasised the need of the older patients for longer stay in hospital and in fact of the over 65 years age group a quarter of them were still in hospital at four weeks. Ten per cent of these older patients were in hospital for between three months and a year and 10 per cent (14 patients) were in hospital for over a year (Table 4). Thirty-five patients from the whole region were in a cottage hospital for more than 24 weeks, and it is this relatively small number of long-stay elderly patients that tend to block the beds in the cottage hospitals.

TABLE 2

COTTAGE HOSPITAL DISCHARGES - 1972

All cottage hospitals N.E. Scotland - G.P. non-obstetric beds

MONTH OF ADMISSION

| Month | Age Group (years) | | | | Total |
|---|---|---|---|---|---|
| | 0 - 14 | 15 - 44 | 45 - 64 | 65+ | |
| January | 8 | 56 | 81 | 172 | 317 |
| February | 6 | 46 | 61 | 138 | 251 |
| March | 16 | 68 | 47 | 139 | 270 |
| April | 19 | 45 | 60 | 135 | 259 |
| May | 13 | 60 | 81 | 151 | 305 |
| June | 10 | 68 | 68 | 128 | 274 |
| July | 15 | 66 | 70 | 138 | 289 |
| August | 12 | 58 | 61 | 143 | 274 |
| September | 10 | 55 | 62 | 139 | 266 |
| October | 14 | 60 | 64 | 152 | 290 |
| November | 12 | 69 | 57 | 158 | 296 |
| December | 14 | 48 | 62 | 148 | 272 |
| TOTAL: | 149 | 699 | 774 | 1741 | 3363 |

TABLE 3

COTTAGE HOSPITAL DISCHARGES - 1972

All cottage hospitals N.E. Scotland - G.P. non-obstetric beds

DURATION OF STAY (weeks)

| Weeks | Age Group (years) | | | | Total |
|---|---|---|---|---|---|
| | 0 - 14 | 15 - 44 | 45 - 64 | 65+ | |
| 1 | 113 | 518 | 250 | 332 | 1213 |
| 2 | 31 | 116 | 228 | 411 | 786 |
| 3 | 2 | 33 | 131 | 346 | 512 |
| 4 | 1 | 14 | 59 | 183 | 257 |
| Sub-total | 147 | 681 | 668 | 1272 | 2768 |
| Over 4 weeks | 2 | 18 | 106 | 469 | 595 |
| TOTAL: | 149 | 699 | 774 | 1741 | 3363 |

TABLE 4

COTTAGE HOSPITAL DISCHARGES - 1972

All cottage hospitals N.E. Scotland - G.P. non-obstetric beds

DURATION OF STAY (over 65-year-olds)

| Weeks | Age Group (years) | | Total |
|---|---|---|---|
| | 65 - 74 | 75+ | |
| 0 - 4 | 587 | 685 | 1272 |
| 5 - 8 | 114 | 205 | 319 |
| 9 - 12 | 19 | 45 | 64 |
| 13 - 16 | 7 | 23 | 30 |
| 17 - 20 | 2 | 12 | 14 |
| 21 - 24 | 2 | 5 | 7 |
| 25 - 52 | 3 | 18 | 21 |
| Over 52 weeks | 4 | 10 | 14 |
| TOTAL: | 738 | 1003 | 1741 |

The median duration of stay by age group was:

| | | |
|---|---|---|
| 0 - 14 years | = | 4.3 days |
| 15 - 44 " | = | 4.5 days |
| 45 - 64 " | = | 10.9 days |
| 65 - 74 " | = | 13.6 days |
| 75 + " | = | 17.8 days |

The average duration of stay for the 2768 patients discharged within 28 days was 9.1 days, and for the 595 patients in hospital for longer than 28 days the average duration was 61.3 days. In calculating these figures, the time spent in hospital by the 14 patients whose duration of stay was in excess of 1 year has been excluded.

DEATHS

Only a small proportion (4.1 per cent) of patients under the age of 65 years died in a cottage hospital (Table 5), whereas one-fifth of the "discharges" in the over 65 year-old group were deaths.

Death was responsible for the short duration of stay of quite a number of older patients. More than a quarter of all the over 65-year-olds in whom the duration of stay in hospital was less than 14 days died. Of those patients whose duration of stay was less than a week, 39 per cent died and of the patients aged over 75 years, 44 per cent of those in hospital for less than a week died. In this latter age group a further 23 per cent of those patients in hospital for 8 to 14 days also died.

TABLE 5

## COTTAGE HOSPITAL DISCHARGES - 1972

All cottage hospitals N.E. Scotland - G.P. non-obstetric beds

### DEATHS

| Age Group (years) | Deaths | All discharges | Percentage |
|---|---|---|---|
| 0 - 64 | 67 | 1622 | 4.1 |
| 65 - 74 | 130 | 738 | 17.6 |
| 75 + | 228 | 1003 | 22.7 |
| TOTAL: | 425 | 3363 | 12.6% |

FIRST DIAGNOSIS

The SMR.1 form makes provision for four diagnoses. These are normally recorded in order of importance for the particular episode of hospital care. The first recorded diagnosis was taken as the main problem which necessitated admission of the patient to hospital.

All first diagnoses were classified into 80 sub-groups of the International Classification of Diseases, 1965 (I.C.D.). This was done in order to obtain more information than would be available from the 17 general disease categories of the I.C.D. The sub-groups are listed in Appendix I.

When placed in frequency order it was found that "symptoms referable to systems or organs" was the commonest sub-group, accounting for 10 per cent of diagnoses. This sub-group was, therefore, examined in detail and it was found that abdominal pain and pain in the chest were its commonest components. Abdominal pain accounted for 1.6 per cent of all first diagnoses. When discharges from Aberdeen Royal Infirmary during 1972 were examined for comparison, it was found that abdominal pain was the only diagnosis for 2.4 per cent of all discharges. The "symptomatic" diagnoses were re-grouped by system or organ and included under the systematic category of the I.C.D. to which the symptoms were referable.

It was found (Table 6) that the largest category were diseases of the circulatory system, accounting for one-quarter of

TABLE 6

COTTAGE HOSPITAL DISCHARGES - 1972

All cottage hospitals N.E. Scotland - G.P. non-obstetric beds

FIRST DIAGNOSIS

| I.C.D. Category (modified*) | | No. | % |
|---|---|---|---|
| I | Infective and parasitic diseases | 39 | 1.2 |
| II | Neoplasms | 253 | 7.5 |
| III | Endocrine, nutritional and metabolic diseases | 59 | 1.8 |
| IV | Diseases of blood and blood-forming organs | 26 | 0.8 |
| V | Mental disorders | 86 | 2.6 |
| VI | Diseases of nervous system and sense organs | 118 | 3.5 |
| VII | Diseases of circulatory system | 866 | 25.8 |
| VIII | Diseases of respiratory system | 469 | 13.9 |
| IX | Diseases of digestive system | 353 | 10.5 |
| X | Diseases of genito-urinary system | 388 | 11.5 |
| XI | Complication of pregnancy and puerperium | 32 | 1.0 |
| XII | Diseases of skin and subcutaneous tissue | 54 | 1.6 |
| XIII | Diseases of musculoskeletal system | 154 | 4.6 |
| XIV | Congenital anomalies | 5 | 0.1 |
| XV | Certain causes of perinatal morbidity and mortality | 2 | 0.1 |
| XVI | General symptoms, senility and ill-defined | 134 | 4.0 |
| XVII | Accidents, poisonings and violence | 325 | 9.7 |
| | TOTAL: | 3363 | 100% |

* From the category XVI, the symptomatic diagnoses (ICD 780-789) have been removed and reclassified under the relevant systematic category.

all first diagnoses. These were followed by diseases of the respiratory system, each of which accounted for some 10 to 14 per cent of all first diagnoses. Accidents account for nearly 10 per cent of the discharge diagnoses, underlining the importance of cottage hospitals in dealing with this category of patient.

The commonest conditions treated in the cottage hospitals were cerebrovascular disease, bronchitis and pneumonia, ischaemic heart disease and neoplasms, and 134 patients were admitted for senility and ill-defined disease. This highlights the contribution that is being made by the cottage hospitals in the terminal care of elderly patients.

When the frequency order of first diagnoses was analysed for male and female patients (Table 7), the most striking difference was in diseases of oesophagus, stomach and duodenum, which ranked seventh for male patients and only twentyseventh for female patients. The other conditions with a higher ranking for male patients were bronchitis, emphysema and pneumonia. For the female patients gynaecological disorders ranked first, while diseases of genital organs in male patients were ninth. The other conditions with a higher ranking for female patients were diseases of veins and urinary system, together with senility and ill-defined disease.

HOSPITAL USAGE (Table 8)/

TABLE 7

COTTAGE HOSPITAL DISCHARGES - 1972

All cottage hospitals N.E. Scotland - G.P. non-obstetric beds

FIRST DIAGNOSIS (80 I.C.D. sub-groups)

| | Frequency order | | |
|---|---|---|---|
| | All patients | Male | Female |
| Symptoms referable to systems or organs | 1st | 1st | 2nd |
| Accidents, poisonings and violence | 2nd | 2nd | 4th |
| Cerebrovascular disease | 3rd | 5th | 3rd |
| Ischaemic heart disease | 4th | 3rd | 5th |
| Diseases of female genital organs | 5th | - | 1st |
| Bronchitis, emphysema and asthma | 6th | 4th | 8th |
| Other forms of heart disease | 7th | 6th | 7th |
| Senility and ill-defined disease | 8th | 13th | 6th |
| Pneumonia | 9th | 8th | 13th |
| Diseases of veins and lymphatics | 10th | 14th | 10th |
| Other diseases of nervous system | 11th | 12th | 12th |
| Diseases of oesophagus, stomach and duodenum | 12th | 7th | (27th) |
| Other diseases of urinary system | 13th | (18th) | 11th |
| Osteomyelitis and other diseases of bone and joint | 14th | 10th | 16th |
| Malignant neoplasms of digestive organs | 15th | 11th | 15th |
| Arthritis and rheumatism (not rheumatic fever) | 16th | (31st) | 9th |

HOSPITAL USAGE (Table 8)

Three-quarters of all patients admitted to cottage hospitals were fully treated in the cottage hospital. In the remaining quarter of cases the care of the patient was shared between the cottage and general hospital. About 12 per cent were transferred to a general hospital after initial admission to a cottage hospital, and 12 per cent were transferred from the general hospital to a cottage hospital for convalescence or continuing care - a small number (2 per cent) being re-admitted to the general hospital. This was particularly noticeable amongst those patients with neoplasm, half of whom were transferred from Aberdeen to a cottage hospital.

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## TABLE 8

## COTTAGE HOSPITAL DISCHARGES - 1972

All cottage hospitals N.E. Scotland - G.P. non-obstetric beds

HOSPITAL USAGE

| First diagnosis | A | B | C | D |
|---|---|---|---|---|
| I Infective and parasitic diseases | 30 | 8 | 0 | 1 |
| II Neoplasms | 152 | 22 | 71 | 8 |
| III Endocrine, nutritional and metabolic diseases | 46 | 5 | 3 | 5 |
| IV Diseases of blood and blood-forming organs | 19 | 3 | 2 | 2 |
| V Mental disorders | 65 | 19 | 1 | 1 |
| VI Diseases of nervous system and sense organs | 63 | 27 | 9 | 2 |
| VII Diseases of circulatory system | 633 | 85 | 67 | 14 |
| VIII Diseases of respiratory system | 359 | 35 | 11 | 1 |
| IX Diseases of digestive system | 122 | 33 | 79 | 6 |
| X Diseases of genito-urinary system | 264 | 22 | 40 | 3 |
| XI Complication of pregnancy and puerperium | 20 | 9 | 3 | 0 |
| XII Diseases of skin and subcutaneous tissue | 45 | 5 | 4 | 0 |
| XIII Diseases of musculoskeletal system | 118 | 18 | 9 | 3 |
| XIV Cengenital anomalies | 2 | 1 | 2 | 0 |
| XV Certain causes of perinatal morbidity and mortality | 1 | 0 | 1 | 0 |
| XVI Symptoma and ill-defined conditions | 367 | 71 | 14 | 7 |
| XVII Accidents, poisonings and violence | 240 | 35 | 36 | 14 |
| TOTAL: | 2546 (75.7%) | 398 (11.8%) | 352 (10.5%) | 67 (2.0%) |

A = Fully treated in cottage hospital

B = Transferred to other hospital

C = Transferred from other hospital

D = Transferred in and transferred out

# CHAPTER 5

## DISCHARGE RATES

## DISCHARGE RATES

The preceding chapter has surveyed the use made of all the non-obstetric cottage hospital beds in the area during 1972. Frpm the same source of information the use made of cottage hospital beds and general beds in Aberdeen hospitals by a defined population from six selected practices was analysed. Three of the selected practices (Insch, Inverurie and Keith) had access to cottage hospital beds, while in the other three practices (Ellon, Banchory and Alford) there was no choice and all patients for admission were referred to a general hospital. The defined population on which the discharge rates were based have been described in Chapter 3.

The analysis was made of hospital discharge summaries and therefore the term "discharge rate" was used but, as explained previously, this can be taken as equivalent to the more familiar "admission rate".

### RESULTS

In the practices with cottage hospital facilities there was a greater range in over-all discharge rates (Table 9) than in the practices without access to cottage hospital beds. In the group with cottage hospital facilities the Keith practice had the highest over-all discharge rate, while Inverurie and Insch had discharge rates similar to the corresponding practices in Banchory and Alford without access to cottage hospital beds.

TABLE 9

## COTTAGE HOSPITAL DISCHARGES - 1972

Six selected practices - all hospital discharges

### DISCHARGE RATES

(per 1000 practice population)

| | Cottage hospital | General hospital | ALL discharges |
|---|---|---|---|
| KEITH | 36 | 105 | 141 |
| INVERURIE | 17 | 97 | 114 |
| INSCH | 20 | 76 | 96 |
| COMBINED RATE | 25 | 95 | 121 |
| ELLON | - | 110 | 110 |
| BANCHORY | - | 117 | 117 |
| ALFORD | - | 99 | 99 |
| COMBINED RATE | - | 110 | 110 |

The practice in Keith made more use of their cottage hospital beds in admitting a quarter of all patients referred to hospital. The Inverurie practice admitted 15 per cent and the Insch practice 20 per cent to a cottage hospital bed. There was a further difference in the use of cottage hospital beds, in that 13 per cent of patients admitted to Keith were transferred to Aberdeen, as compared with 5 per cent from Inverurie, and 6 per cent from Insch. The doctors in Keith frequently admitted a patient for observation before transferring him to Aberdeen.

The over-all discharge rate for the three practices with access to cottage hospital beds was 121 per 1000, and for the three practices without such facilities was 116 per 1000. Although the difference is small (5 patients per 1000) it does represent 91 patients from the total study population who received hospital treatment. If the Keith practice was typical of all practices using cottage hospital beds in North-East Scotland, the difference in hospital usage would be much greater. If Inverurie and Insch were typical of all such practices there would be little difference between them and the practices without access to cottage hospital beds. It is, therefore, reasonable to consider the combined discharge rate of 121 per 1000 as representative of practices with cottage hospital facilities.

AGE-SPECIFIC DISCHARGE RATES

When the patient's age was taken into account (Table 10) it was found that there was a close correlation between the two groups of practices for patients under the age of 45 years. From a discharge rate of 99 per 1000 for the first five years of life, the rate falls to 56 per 1000 over the next ten years and then rises to 90 per 1000 in the 15 - 44 year age group.

The greatest variations in discharge rates occur in the 45 - 64 year age group. There was a variation in the two groups of practices - the discharge rate for Keith, Inverurie and Insch being 153 per 1000, and for Ellon, Banchory and Alford being 125 per 1000. There was also a greater range in the former group of practices than in the latter.

Over the age of 65 years the discharge rates for the two groups of practiceswere 231 per 1000 and 212 per 1000 respectively. The most interesting feature was the uniformity in this age group of the discharge rates for the practices with cottage hospital beds.

Female patients had an over-all higher discharge rate than male patients in both groups of practices, being 128 per 1000 in practices with cottage hospitals and 112 per 1000 in practices without such facilities. The corresponding figures for male patients was 114 and 109 per 1000.

TABLE 10

COTTAGE HOSPITAL DISCHARGES - 1972

Six selected practices - all hospital discharges

AGE SPECIFIC DISCHARGE RATE

(per 1000 practice population)

| Practices | AGE (years) | | | | |
|---|---|---|---|---|---|
| | 0 - 4 | 5 - 14 | 15 - 44 | 45 - 64 | 65+ |
| Keith | 110 | 67 | 120 | 191 | 230 |
| Inverurie | 110 | 54 | 78 | 144 | 231 |
| Insch | 56 | 58 | 51 | 104 | 234 |
| COMBINED RATE | 100 | 60 | 90 | 153 | 231 |
| Ellon | 79 | 56 | 97 | 119 | 231 |
| Banchory | 104 | 40 | 93 | 142 | 206 |
| Alford | 137 | 61 | 70 | 103 | 191 |
| COMBINED RATE | 97 | 51 | 90 | 125 | 212 |

When this was examined in more detail, it was found that this preponderance of female patients discharged was not general. The higher discharge rate for female patients was only in patients aged 15 - 54 years. Up to the age of 15 years more male patients were discharged, and again over the age of 55 years the discharge rate of male patients was higher than that of females. This difference was most marked over the age of 65 years and the male : female ratio differs between the two groups of practices, as follows:

| | Practices WITH cottage hospital | Practices WITHOUT cottage hospital |
|---|---|---|
| 65 - 74 years | 1.1 : 1 | 1.7 : 1 |
| 75 + " | 1.6 : 1 | 2.1 : 1 |

From which it was seen that the preponderance in the discharge rate of male patients increases with age. The rate in males over 75 years showed a five-fold increase when compared with male patients aged under 45 years. This may be accounted for by a shorter duration of stay for elderly male patients and therefore a greater turnover and higher discharge rate. Sutherland (1972) has shown that in the Aberdeen hospitals relatively more long-stay patients were women.

DISEASE CATEGORY

The patients discharged from hospital in the six practices were classified by the main I.C.D. groups (Table 11).

## TABLE 11

## COTTAGE HOSPITAL DISCHARGES - 1972

Six selected practices - all hospital discharges

| Disease category | Keith | Inverurie | Insch | Ellon | Banchory | Alford |
|---|---|---|---|---|---|---|
| I Infective and parasitic | 12 | 11 | 5 | 9 | 3 | 7 |
| II Neoplasms | 90 | 71 | 44 | 92 | 88 | 27 |
| III Endocrine and metabolic | 19 | 14 | 10 | 9 | 20 | 6 |
| IV Blood diseases | 5 | 5 | - | 6 | 6 | 3 |
| V Mental disorders | 7 | 7 | 3 | 5 | 2 | - |
| VI Nervous system | 46 | 41 | 25 | 38 | 49 | 16 |
| VII Circulatory | 138 | 107 | 52 | 93 | 117 | 40 |
| VIII Respiratory | 75 | 56 | 18 | 63 | 42 | 28 |
| IX Digestive | 118 | 98 | 69 | 98 | 100 | 46 |
| X Genito-urinary | 145 | 90 | 39 | 98 | 69 | 31 |
| XI Pregnancy complications | 29 | 18 | 5 | 24 | 13 | 11 |
| XII Skin | 17 | 19 | 9 | 6 | 9 | 1 |
| XIII Musculoskeletal | 49 | 28 | 17 | 26 | 28 | 12 |
| XIV Congenital anomalies | 22 | 14 | 12 | 16 | 9 | 1 |
| XV Perinatal | 14 | 13 | 2 | 10 | 12 | 7 |
| XVI Ill-defined | 114 | 78 | 16 | 51 | 39 | 26 |
| XVII Accidents | 104 | 84 | 46 | 85 | 64 | 41 |
| TOTAL PATIENTS: | 1041 | 777 | 378 | 751 | 688 | 312 |
| Patients treated in Cottage Hospital | 269 | 115 | 78 | nil | nil | nil |

These results show discharges and not patients discharged, as it was not possible to identify individual patients from the information on hospital discharges. It may be, for example in relation to neoplasms, that one patient had several periods in hospital over the year. The question of multiple admissions will be dealt with in the patient-based part of the study in Section III.

It was seen that in all the practices diseases of the circulatory, digestive and genito-urinary systems were common, a finding that was similar to that in the earlier part of this study but with the notable exception that in discharges from all cottage hospitals, diseases of the respiratory system ranked second to circulatory disease.

When discharges in frequency order were examined more closely (Table 12) and ranked for each practice, it was seen that there was only slight variation between the practices. Expressed as discharge rates, diseases of digestive system ranged from 14 to 17 per 1000; diseases of circulatory system ranged from 13 to 20 per 1000; and diseases of genito-urinary system ranged from 10 to 20 per 1000 practice population.

A detailed analysis of the diseases of circulatory and digestive system (Table 13) showed a very similar pattern of disease in the two groups of practices. These were the actual

TABLE 12

COTTAGE HOSPITAL DISCHARGES - 1972

Six selected practices - all hospital discharges.

DISCHARGES BY COMMONEST DISEASE CATEGORY

KEITH

| | | | |
|---|---|---|---|
| Total discharges | = | 1041 | |
| 1. Genito-urinary system | = | 145 | (20 per 1000 population) |
| 2. Circulatory system | = | 138 | (19 " 1000 " )) |
| 3. Digestive system | = | 118 | (16 " 1000 " ) |

INVERURIE

| | | | |
|---|---|---|---|
| Total discharges | = | 777 | |
| 1. Circulatory system | = | 107 | (16 per 1000 population) |
| 2. Digestive system | = | 98 | (14 " 1000 " ) |
| 3. Genito-urinary system | = | 90 | (13 " 1000 " ) |

INSCH

| | | | |
|---|---|---|---|
| Total discharges | = | 378 | |
| 1. Digestive system | = | 69 | (17 per 1000 population) |
| 2. Circulatory system | = | 52 | (13 " 1000 " ) |
| 3. Neoplasms | = | 44 | (11 " 1000 " ) |

ELLON

| | | | |
|---|---|---|---|
| Total discharges | = | 751 | |
| 1. Genito-urinary system | = | 98 | (14 per 1000 population) |
| 2. Digestive system | = | 98 | (14 " 1000 " ) |
| 3. Circulatory system | = | 90 | (13 " 1000 " ) |

BANCHORY

| | | | |
|---|---|---|---|
| Total discharges | = | 688 | |
| 1. Circulatory system | = | 117 | (20 per 1000 population) |
| 2. Digestive system | = | 100 | (17 " 1000 " ) |
| 3. Neoplasms | = | 88 | (15 " 1000 " ) |

ALFORD

| | | | |
|---|---|---|---|
| Total discharges | = | 312 | |
| 1. Digestive system | = | 46 | (15 per 1000 population) |
| 2. Circulatory system | = | 40 | (13 " 1000 " ) |
| 3. Genito-urinary system | = | 31 | (10 " 1000 " ) |

TABLE 13

COTTAGE HOSPITAL DISCHARGES - 1972

Six selected practices - all hospital discharges

DISEASES OF CIRCULATORY AND DIGESTIVE SYSTEMS

| Disease | Keith, Inverurie and Insch | Ellon, Banchory & Alford |
|---|---|---|
| VII CIRCULATORY SYSTEM: | | |
| Rheumatic fever | 0 | 0 |
| Chronic rheumatic heart disease | 7 | 4 |
| Hypertensive disease | 12 | 13 |
| Ischaemic heart disease | 96 | 102 |
| Other forms of heart disease | 26 | 15 |
| Cerebrovascular disease | 46 | 35 |
| Diseases of arteries and arterioles | 37 | 29 |
| Diseases of veins, lymphatics etc. | 74 | 52 |
| TOTAL: | 298 | 250 |
| IX DIGESTIVE SYSTEM: | | |
| Diseases of oral cavity and salivary glands | 39 | 32 |
| Diseases of oesophagus, stomach and duodenum | 79 | 60 |
| Appendicitis | 24 | 23 |
| Hernia of abdominal cavity | 43 | 44 |
| Other diseases of intestine and peritoneum | 47 | 56 |
| Diseases of liver, gall-bladder and pancreas | 53 | 29 |
| TOTAL: | 285 | 244 |

numbers of discharges from all hospital beds and it would suggest that these two disease categories would be suitable for comparative study of differing hospital facilities in these two defined populations of patients.

As a preliminary to such a comparison, which will be considered in Section III of this study, the discharge rates for diseases of circulatory and digestive systems were calculated. While this showed virtually an identical discharge rate of 16 per 1000 for both categories of disease in both groups of practices, there was a difference in the use of cottage hospitals. In diseases of the circulatory system the discharge rate for the three practices with cottage hospital beds was 13 per 1000 from Aberdeen hospitals and 3 per 1000 from cottage hospitals. With diseases of the digestive system the total discharge rate was 16 per 1000, but with 15 per 1000 from Aberdeen hospitals and only 1 per 1000 from cottage hospitals. It would appear that diseases of the circulatory system would form a satisfactory basis for any comparative study. It was, therefore, decided that a study should be made of patients with diseases of the circulatory system, to compare those patients who were admitted to a cottage hospital and those admitted to an Aberdeen hospital. This analysis will be considered in Chapter 12.

UNIT ON DISCHARGE

The most frequent discharges from Aberdeen hospitals were from units of general surgery and general medicine (Table 14).

TABLE 14

COTTAGE HOSPITAL DISCHARGES - 1972

Six selected practices - all hospital discharges.

UNIT ON DISCHARGE (34 units)

| Code | Unit | KEITH, INVERURIE AND INSCH | | ELLON, BANCHORY AND ALFORD | |
|---|---|---|---|---|---|
| | | Discharges | % | Discharges | % |
| 1 | General surgery | 457 | 20.8 | 347 | 19.8 |
| 2 | Orthopaedic surgery | 157 | 7.2 | 122 | 7.0 |
| 3 | E. N. T. Surgery | 119 | 5.4 | 107 | 6.1 |
| 4 | Ophthalmology | 42 | 1.9 | 33 | 1.9 |
| 5 | Urology | 59 | 2.7 | 45 | 2.6 |
| 6 | Neurosurgery | 24 | 1.1 | 14 | 0.8 |
| 7 | Thoracic surgery | 16 | 0.7 | 25 | 1.4 |
| 9 | Dental surgery | 38 | 1.7 | 35 | 2.0 |
| 11 | Paediatric, surgical | 69 | 3.1 | 49 | 2.8 |
| 12 | Paediatric, medical | 75 | 3.4 | 87 | 5.0 |
| 13 | General medicine | 287 | 13.1 | 329 | 18.8 |
| 14 | Cardiology | 24 | 1.1 | 30 | 1.7 |
| 20 | Geriatric assessment | 11 | 0.5 | 47 | 2.7 |
| 24 | Gynaecology | 220 | 10.0 | 233 | 13.3 |
| 30 | Convalescent | 27 | 1.2 | 86 | 4.9 |
| 31 | Radiotherapy | 18 | 0.8 | 20 | 1.1 |
| 32 | G.P. non-obstetric | 463 | 21.1 | 10 | 0.6 |
| 33 | Accident and emergency | 29 | 1.3 | 53 | 3.0 |
| | Other units | 61 | 2.8 | 79 | 4.5 |
| | TOTAL: | 2196 | 100% | 1751 | 100% |

These units were followed by gynaecology, orthopaedic and E.N.T. surgery in frequency of discharges. The full list of hospital units is given in Appendix II. There were 10 discharges from general practitioner non-obstetric beds for Ellon, Banchory and Alford - these were patients admitted to a cottage hospital bed under the care of a general practitioner other than the patient's own doctor (for example, a patient taking ill while away from home).

When these discharges are considered as a discharge rate by unit (Table 15) some interesting results appear. The combined discharge rate for the five commonest surgical units was the same for practices with and those without cottage hospital facilities. In the cottage hospitals selected for this study there were no surgical facilities available, and therefore the similar surgical discharge rate for the two groups would suggest a uniformity in the use of the Aberdeen hospitals by the practices.

On this basis, reasonable implications can be made from the discharge rates of the medical units in Aberdeen. It was apparent that there was a difference between the two groups of practices, the discharge rate being lower for each Aberdeen medical unit shown in Table 15 for patients from the practices which had the alternative choice of a cottage hospital bed. For the practices with access to cottage hospital beds, the discharge rate for the four Aberdeen medical units was 23 per 1000, while

TABLE 15

COTTAGE HOSPITAL DISCHARGES - 1972

Six selected practices - all hospital discharges.

DISCHARGE RATE BY UNIT (rate per 1000 practice population)

Listing units with more than 100 discharges to six practices

| | KEITH, INVERURIE AND INSCH | | ELLON, BANCHORY AND ALFORD | |
|---|---|---|---|---|
| | Discharges | Rate per 1000 | Discharges | Rate per 1000 |
| General surgery | 457 | 25 | 347 | 22 |
| Gynaecology | 220 | 12 | 233 | 15 |
| Orthopaedic surgery | 157 | 9 | 122 | 8 |
| E. N. T. surgery | 119 | 7 | 107 | 7 |
| Urology | 59 | 3 | 45 | 3 |
| | | 56 | | 55 |
| G.P. non-obstetric | 463 | 25 | - | - |
| General medicine | 287 | 16 | 329 | 21 |
| Paediatric, medical | 75 | 4 | 87 | 5 |
| Medical specialties* | 44 | 2 | 60 | 4 |
| Convalescent | 27 | 1 | 86 | 5 |
| | | 48 | | 35 |
| TOTAL: | 1908 (86.9% all discharges) | 105 | 1416 (80.9% all discharges) | 89 |

* Cardiology, neurology, dermatology and chest medicine.

for patients from the other three practices the discharge rate was 35 per 1000 - the difference between the two groups of patients being 12 per 1000 for the four medical units in central hospitals.

This figure of 12 per 1000 was almost half the discharge rate (25 per 1000) from the general practitioner non-obstetric beds, which supports the hypothesis that there was a protective effect on central hospital beds by the cottage hospitals, and the extent of this effect was half of the general practitioner beds. In other words, for the three practices at Keith, Inverurie and Insch, over 200 patients were treated in a cottage hospital bed during the course of one year, who would otherwise have had to be admitted to an Aberdeen hospital.

STANDARDISED DISCHARGES

In order to assess the pattern of hospital usage by patients from the six practices the discharge rates were standardised. The expected number of discharges were calculated by applying standard age-specific discharge rates to the local population (Table 16). The standard age-specific discharge rates were derived from the Scottish Hospital In-Patient Statistics (1972). These statistics and the results of this study are both based on patients discharged from hospital.

## TABLE 16

## COTTAGE HOSPITAL DISCHARGES - 1972

### STANDARDISED DISCHARGES

| Age Group | KEITH | INVERURIE | INSCH | Total Actual ÷ Expected | ELLON | BANCHORY | ALFORD | Total Actual ÷ Expected |
|---|---|---|---|---|---|---|---|---|
| 0-14 years | | | | | | | | |
| Expected* | 154 | 138 | 70 | 88.8% | 143 | 109 | 61 | 81.2% |
| Actual | 151 | 121 | 49 | | 111 | 80 | 63 | |
| 15-44 years | | | | | | | | |
| Expected | 402 | 361 | 207 | 63.6% | 390 | 297 | 168 | 63.9% |
| Actual | 342 | 200 | 75 | | 268 | 195 | 83 | |
| 45-64 years | | | | | | | | |
| Expected | 181 | 169 | 108 | 138.2% | 163 | 156 | 78 | 113.1% |
| Actual | 312 | 220 | 101 | | 176 | 201 | 72 | |
| 65+ years | | | | | | | | |
| Expected | 192 | 191 | 122 | 123.8% | 159 | 192 | 92 | 113.3% |
| Actual | 236 | 236 | 153 | | 196 | 212 | 94 | |
| TOTAL | | | | | | | | |
| Expected | 745 | 685 | 398 | 120.1% | 689 | 591 | 316 | 109.7% |
| Actual | 1041 | 777 | 378 | | 751 | 688 | 312 | |

* Expected number of discharges calculated by applying standard age-specific discharge rates to local population.

When compared with the discharges from the whole Grampian Area the discharges from both groups of practices were lower. The expected discharges from Grampian Area were 44,129 (calculated on a discharge rate of 1,017 per 10,000 males and 996 per 10,000 females) whereas the total in-patient discharges during 1972 (excluding maternity and psychiatry) were 56,901 - this being 28.9 per cent above the national figure. The total discharges were 10 per cent higher than expected in the practices without cottage hospital beds and 20 per cent higher than expected in the group with cottage hospital beds.

Within age-specific groups a different pattern emerged, which was similar in both groups of practices. In the 0 - 14 year group discharges were about four-fifths of the expected, while in the 15 - 44 year group the number of discharges fell further to two-thirds of the expected discharges. There was a reversal of this position over the age of 45 years, when all groups had above the expected number of discharges. This was most marked in the 45 - 64 year age group from practices with cottage hospitals, where the number of discharges was 38 per cent higher than expected.

The over-all pattern was of a higher than national level of use of hospital beds, but a lower use of beds than in the whole of Grampian Area. Older patients were more readily referred to hospital than younger patients, which may be a reflection of morbidity patterns.

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# CHAPTER 6

## UNMET NEED

## UNMET NEED

The provision of general practitioner non-obstetric beds in the Grampian Area in 1973 for the population living outwith Aberdeen was 1.4 per 1000. If the current provision of 1.4 beds per 1000 were accepted as the minimum requirement, the question that required to be answered was, "Will there be an unmet need?" To seek an answer to this question, a small study was made of patient needs for hospital care.

The aim of the study was to identify those patients who were treated at home but who should, in the opinion of their own general practitioner, have been treated in hospital if a bed had been available.

All the 49 general practitioner principals in Grampian West District were invited to participate. Their combined list size was 77,200, with 10,400 (13.5 per cent) of the patients being over 65 years. The study extended over a six-week period in March/April, 1974. The general practitioners were asked to complete a questionnaire (Appendix III) for any patient whom they considered should have been admitted to hospital. At the end of the study period, if no such patients were identified the general practitioner was asked to send a 'nil' return.

Replies were received from 46 general practitioners. Two of them were on holiday during the study, the results are therefore based on replies from 44 (90 per cent) of the practitioners in Grampian West.

Questionnaires (Appendix III) were completed by the general practitioners for 26 patients who they considered should have been in hospital. Twenty-one (81 per cent) of these patients were over 65 years, and 12 of them over 80 years old. The majority of the episodes of illness (73 per cent) were of short duration at the time of requesting admission, 8 being less than 24 hours and a further 11 episodes being less than 72 hours duration. The remaining 7 patients (27 per cent) had a duration of illness longer than one week and in some cases up to six weeks.

Help was available in the home for 20 patients, though in 3 cases the general practitioner indicated that the help was rather ineffective. The District Nurse was in attendance on 17 patients and 8 received assistance from Meals-on-Wheels or Home Helps.

There were 6 patients with cardiovascular disease, 4 cerebrovascular disease, 2 peripheral vascular disease, 6 respiratory infections and 3 had osteoporotic spines. Two of the patients with cardiovascular disease and one with cerebrovascular disease died.

The main reasons for the general practitioner considering that the patient should be in hospital were - "no-one to look after the patient at home", the "requirement of nursing supervision", and that the "condition would improve quicker in hospital".

Two of the 26 patients refused to consider hospital admission and in one patient the general practitioner decided to treat the patient at home. Of the remaining 23 patients, 5 were ultimately admitted to hospital and a further 2 patients placed on a waiting list - leaving 16 patients for whom no bed was available. Several of the general practitioners commented that although they had failed to obtain a bed locally, they had no doubt that they would have found a bed in Aberdeen if management of the patient at home had been really impossible. It should be noted, however, that three patients were critically ill.

If these 26 patients represented the maximum demand for beds over a six-week period, this would give a rate of 0.3 patients per 1000 population for the study period, or a demand of 2.9 patients per 1000 population per year. Similarly, if the 16 patients represent the minimum unmet demand, this would be a rate of 1.8 patients per 1000 population per year.

The population of West Grampian District in 1971 was 75,600 - the excess of patients on the combined practice lists included patients living outside the district. If the average days stay in a general practitioner non-obstetric bed is taken as 24.3 days, this being based on the 1972 Regional Digest of Hospital Statistics, then on the basis of 85 per cent bed occupancy, the extra bed requirements would be 18 beds to meet the total demand, and 11 beds to meet the minimum unmet demand.

In terms of the current provision of 1.4 general practitioner non-obstetric beds per 1000 population, the maximum unmet demand would be 0.2 per 1000, and the minimum unmet demand would be 0.1 beds per 1000 population.

To answer the original question, "Will there be an unmet need?", it was therefore possible to suggest, on the basis of this study, that the minimum unmet need would be 0.1 beds per 1000 population. If this rate were added to the existing rate of 1.4 per 1000 population in Grampian Area, this would give a minimum requirement of 1.5 beds per 1000 population.

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# CHAPTER 7

## BED REQUIREMENTS

## BED REQUIREMENTS

The absence of an agreed bed ratio for the provision of general practitioner beds has been commented upon in the introduction to this study. Under very different circumstances Burdett (1877) suggested 1 bed per 1000, while in more recent times the Oxford Regional Hospital Board estimated (Loudon, 1972) 2 beds per 1000 in a community hospital. In the Grampian Area there is a current general practitioner bed provision of 1.4 beds per 1000 for the population outwith the City of Aberdeen, but there are proposals that this should be reduced to 1.0 per 1000.

From the results of this part of the study an attempt was made to establish a rational basis for the provision of general practitioner beds and to apply this to the individual cottage hospitals in the Grampian Area. The types of patient most suitable to care in these beds will be considered in the second part of the study.

When the hospital discharge rates were calculated (Table 9) it was found that in the practices with no cottage hospital the discharge rate was 110 per 1000, while in the practices with cottage hospital facilities the discharge rate from a general hospital was 95 per 1000, this being a saving of 15 patients per 1000 population. However, this latter group of practices had in addition a discharge rate from the cottage

hospitals of 25 per 1000 practice population. The cottage hospital was, therefore, meeting the needs of 25 patients per 1000 practice population, which represented a reduction in demand by patients on Aberdeen hospital beds of 15 per 1000, and in addition apparently met the needs of an extra 10 discharged patients per 1000 practice population per year.

In seeking to determine a ratio for the provision of general practitioner beds this division of 15 + 10 patients per 1000 population was taken as a reasonable projection of the patient demand on such beds. The average Days Stay (Regional Digest of Hospital Statistics, 1972) for all general practitioner non-obstetric beds in North-East Scotland was 24.3 days.

Since 15 discharges per 1000, taking duration of stay into account, equals exactly one bed per 1000 practice population this was the minimum bed requirement for the conditions which exist at that time. If the need being met by the extra 10 discharged patients per 1000 was added then the requirement was 1.7 beds per 1000 population.

A similar result may be obtained in a different way by looking at the unit on discharge for the patients from these two groups of practices (Table 15). It was found that there was virtually no difference in the combined discharge rates from general surgery, gynaecology, orthopaedic surgery, E.N.T. surgery and urology. The differences occurred in the combined discharge rates from the medical units (general medicine, medical paediatric,

medical specialties, and convalescent), where it was found that the combined discharge rate for patients from the practices without cottage hospitals was 35 per 1000, whereas from the practices with cottage hospitals the comparable rate was 23 per 1000.

Therefore, from these results of discharge by unit, general practitioner beds were saving 12 discharges per 1000 population from the general hospitals. This gave a minimum bed requirement of 0.8 beds per 1000 population. To this may be added the remaining 13 discharges per 1000 which, it is suggested may represent an area of demand that was being mey by the cottage hospitals, but was unmet in the areas where there are no cottage hospital facilities. The total of 25 discharges per 1000, taking duration of stay into account, is therefore a general practitioner bed requirement of 1.7 beds per 1000 practice population.

These two sets of results demonstrate a minimum bed requirement of 0.8 to 1.0 per 1000, and a maximum requirement of 1.7 per 1000. There are two further observations to be made. Firstly, these calculations are on the basis of 100 per cent bed occupancy, which for planning purposes is unrealistic. If a bed occupancy of 85 per cent (the average for all beds in Grampian Area) is suggested as reasonable for planning purposes, then the minimum requirements would be 1.2 per 1000 and the maximum 1.9 per 1000.

The second observation is that these figures are based on the assumption that the general practitioners were able to admit to a cottage hospital bed all patients for whom they considered this to be the best place for treatment. There were two groups of patients who were not admitted to a cottage hospital bed. The first were those patients who should, in the general practitioner's opinion, have been in hospital but there was no bed available. It has already been shown in the previous chapter that there was a current unmet demand for cottage hospital beds, amounting to 0.1 beds per 1000 population.

The second group of patients not admitted to a cottage hospital bed were those who were admitted to an Aberdeen hospital, but who could have been treated in a cottage hospital if a bed had been available. From Table 14 it will be seen that for the practices with cottage hospital facilities, 21 per cent of discharges (463 patient discharges out of a total of 2196), were from cottage hospital beds. In the introduction it was noted that different studies variously quoted 20 - 40 per cent of patients as suitable for care in a general practitioner bed. Loudon (1972) concluded that one-third of all patients were suitable for general practitioner care, a figure similar to that concluded by Meredith (1968) whose 30 per cent sample of "acute" beds in Scotland included Aberdeen Royal Infirmary and five of the cottage hospitals in North-East Scotland.

If the conclusions from these surveys are accepted, then the minimum bed requirement must allow for a current unmet demand of 0.1 beds per 1000, and also for the demand of patients currently treated in Aberdeen hospitals who were suitable for care in a general practitioner bed.

Geographical factors must play an important part in any decision on the provision of cottage hospital beds in this part of Scotland. It can be shown that the further patients live from Aberdeen the more likely they are to be treated in a cottage hospital. From Table 9 it is seen that the cottage hospital discharge rate for Inverurie (16 miles from Aberdeen) was 17 per 1000, the rate for Insch (23 miles) was 20 per 1000, and the discharge rate for Keith (50 miles) was 36 per 1000 practice population.

but IC had highest DGH rate.

Therefore it would appear that the minimum ratio for the provision of general practitioner beds in Grampian Area should be 1.5 per 1000 practice population, with an optimum ratio of up to 2.0 per 1000.

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# CONCLUSION

A survey of all patients discharged during 1972 from the 16 cottage hospitals in the Grampian Area has been described, and the use made of the general practitioner non-obstetric beds analysed (Chapter 4).

Having analysed the general use of cottage hospital beds, Chapter 5 examines the specific use of all hospital beds by a defined population in six practices. From this it was possible to determine age-sex specific rates for the discharge of defined categories of patients.

On the basis of these findings the bed utilisation of this population was calculated, after consideration of the possible unmet bed need (Chapter 6). In Chapter 7 a ratio for the provision of general practitioner non-obstetric beds was suggested as a rational basis for future planning - the minimum requirement being 1.5 beds per 1000 population.

This Section has achieved the first aim of the study - to analyse the use made of all cottage hospital beds and to determine a rational basis for the provision of general practitioner beds in rural areas.

It has been shown that the over-all in-patient referral rate from an area with cottage hospital facilities is higher than from an area without such facilities, but at the same time the referral to central hospital beds is lower. This is in accord with the hypothesis.

Section 2 has been concerned with the numerical aspects of in-patient referral. The next Section will consider the condition of individual patients, in terms of age, diagnosis and certain social factors, and the reasons given by their own general practitioners when referring them for in-patient care.

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# SECTION 3

## IN-PATIENT REFERRAL STUDY

## IN-PATIENT REFERRAL STUDY

### INTRODUCTION

This Section presents an analysis of all hospital referrals by two groups of general practitioners. This will achieve the second aim of the study by defining categories of patients best suited to care in cottage hospital beds, and will also test the three postulates of the hypothesis -

i. that the patients admitted to the cottage hospital represent a screening off from the central hospital;

ii. that this group of patients are the equivalent of a similar group of patients from the area without cottage hospital facilities, who may be unnecessarily occupying specialised central hospital beds;

iii. that the excess of patients admitted to the cottage hospital represent a group of patients who, in the area without such facilities, are receiving extra-hospital care which may not meet their needs.

The information was collected from three sources; each of these will first be considered separately, and then an analysis will be made of the composite record. Information was collected from the general practitioner (Chapter 8) when a

patient was referred to hospital; the details of the stay in hospital were available from the hospital discharge summary (Chapter 9); and selected patients provided information (Chapter 10) some weeks after discharge from hospital.

Information was also analysed on the referral of patients to hospital when the availability of hospital beds was restricted (Chapter 11).

Finally, patients with diseases of the circulatory system or gastro-intestinal system were considered separately, and the combined records - referral to hospital, stay in hospital, and follow-up after discharge - were analysed (Chapter 12).

The methods employed have already been described in Chapter 2. In brief, they seek to collect information from the general practitioner before the patient was referred to hospital; from the hospital record for the duration of in-patient stay; and from the patient after discharge from hospital.

The purpose of the study was to compare the use made of hospital beds over a period of one year by a population with access to cottage and general hospital beds, and by a population with access only to general hospital beds. This was a prospective study based on the referral of individual patients for in-patient care. The three sources of information - from the general practitioner, the hospital record, and the patient - provide a composite picture for the comparison of the two populations.

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# CHAPTER 8

## DOCTOR QUESTIONNAIRE

## DOCTOR QUESTIONNAIRE

### METHOD

The purpose of the questionnaire was to gather information about the reasons for referral of a patient to hospital by the general practitioner.

Immediately a patient was admitted to one of the Aberdeen hospitals the Records Department notified me of the admission, giving the patient's details, the unit to which the patient was admitted, and the name of the general practitioner.

On receipt of the information from the Records Department a questionnaire (Appendix IV) was sent to the patient's own doctor. This meant that general practitioners usually received the questionnaire within 3 - 4 days of their patients being admitted to hospital. Similar information was collected at weekly intervals from the cottage hospitals and a questionnaire sent to the general practitioner for completion.

The following analysis is based on 1906 such questionnaires which were completed and returned, this being 98 per cent of the questionnaires sent out. However, it should be noted that there was an excess of 177 completed questionnaires over patient episodes. This arose from the fact that when a patient was transferred from one unit to another a new notification was received from the Records Department. By the time the general

practitioner received the second questionnaire he was, in most instances, in receipt of additional information which might modify his reply. The second questionnaire, therefore, reflects the patient's changing condition and needs at these points in time, as for example when a patient was discharged home from a general hospital and immediately re-admitted to a cottage hospital.

RESULTS

The questionnaire may be divided into four parts: the first being the identification of the patient and general practitioner; the second the preferred choice of hospital; the third being the reason for referral to hospital; and finally the diagnosis made by the general practitioner and the confidence with which he made that diagnosis.

1. CHOICE OF HOSPITAL

| Given the choice, would you prefer to admit this patient to a cottage or a general hospital | | |
|---|---|---|
| Cottage hospital | 344 | 18.8% |
| General hospital | 1490 | 81.2% |
| | 72 | 100% |
| (+ 72 not stated) | 1906 | |

For one out of five patients the doctor would have chosen a cottage hospital for the admission of the patient. This

figure included all the general practitioners in the study and would then separate into those with cottage hospital facilities and those without cottage hospital facilities. A marked difference was then found - when cottage hospital facilities were available the doctors would choose to admit 25 per cent of their patients to them, whereas when no such facilities existed the general practitioners would only consider such an admission desirable in 5 per cent of admissions.

Urgency of Admission

In 45 per cent of patients an immediate admission to hospital was required and in over half the patients admission was certainly required within 48 hours. Just over a third of admissions were from the waiting list.

Duration of Illness

| Duration of this episode of illness | | |
|---|---|---|
| Hours | 420 | 23.1% |
| Days | 424 | 23.3% |
| Weeks | 284 | 15.6% |
| Months | 692 | 38.0% |
| | | 100% |
| (+ 86 not stated) | | |

In almost a quarter of the patients the illness had been present for only a few hours. In general terms the

duration of the episode of illness was short in almost half the patients, while in another 40 per cent of patients the illness had been present for many months. Over a quarter of all patients had been previously admitted to hospital for a similar episode of illness.

2. REASONS FOR REFERRAL

There were 344 patients for whom a cottage hospital would have been the unit of choice for in-patient referral, and these are shown separately from the 1562 questionnaires in which a general hospital bed was chosen. In over 90 per cent of patients a "medical" reason was given for referring the patient to hospital.

| Medical Reasons | General Hospital | | Cottage Hospital | |
|---|---|---|---|---|
| Gravity of illness | 140 | 9.3% | 99 | 39.1% |
| Gravity and investigations | 122 | 8.1% | 20 | 7.9% |
| Gravity and treatment | 129 | 8.6% | 41 | 16.2% |
| Investigations | 409 | 27.2% | 24 | 9.5% |
| Special treatment | 368 | 24.5% | 54 | 21.3% |
| Investigations and treatment | 171 | 11.4% | 8 | 3.2% |
| All three reasons | 166 | 11.0% | 7 | 2.8% |
| | 1505 | 100% | 253 | 100% |

1562 344

On 724 occasions (41.2 per cent) it was the gravity of illness that necessitated admission. In over half of the patients (58.8 per cent) the reason for admission was for investigation and/or treatment.

When considering the patients where the general practitioner would have chosen a cottage hospital, it was found that gravity of illness played a significant part (63.2 per cent), while as may be expected, investigation and treatment played a much smaller part (34.0 per cent) in the decision to refer a patient to hospital.

In 18 per cent of patients a nursing requirement was given as the reason for referral to hospital.

| Nursing Reasons | General Hospital | | Cottage Hospital | |
|---|---|---|---|---|
| Requires intensive care | 99 | 70.7% | 102 | 49.8% |
| Intensive care and poor home conditions | 17 | 12.1% | 35 | 17.1% |
| Inadequate home facilities | 16 | 11.4% | 63 | 30.7% |
| Lack of adequate equipment | 4 | 2.9% | 1 | 0.5% |
| All three reasons | 4 | 2.9% | 4 | 2.0% |
| | 140 | 100% | 205 | 100% |

In 253 admissions (73.3 per cent) the need was for intensive nursing care, while in a further 79 admissions (22.9 per cent) the reason given was inadequate facilities for home nursing.

It is of interest to note that in the patients where a cottage hospital was chosen, 205 (59.6 per cent) were admitted for "nursing reasons" as compared with 140 (9.0 per cent) of the admissions to a general hospital. This underlines the role of

the cottage hospital as a nursing care unit, and this was emphasised by the fact that almost one-third of the patients admitted to a cottage hospital for "nursing reasons" had inadequate home facilities.

Social reasons for admission to hospital were given in 6 per cent of referrals.

Social Reasons

| | General Hospital | | Cottage Hospital | |
|---|---|---|---|---|
| Living alone | 27 | 69.2% | 45 | 59.2% |
| Alone and pressure of relatives | 1 | 2.6% | 2 | 2.6% |
| Overcrowding | nil | - | nil | - |
| Pressure from relatives | 11 | 28.2% | 29 | 38.2% |
| | 39 | 100% | 76 | 100% |

Seventy-five patients were living alone (3.9 per cent) and there were 40 patients (2.1 per cent) in whom the relatives had brought pressure to bear on the doctor. When the group of patients admitted to a cottage hospital were examined it was found that 8 of them had a purely social reason for admission to hospital - in other words, there was no stated medical or nursing requirement - and again these were divided into living alone and pressure from relatives.

As with "nursing reasons" it was of interest to find that "social reasons" were given in 22.2 per cent of all cottage hospital admissions, but in only 2.5 per cent of general hospital admissions.

In 5 per cent of questionnaires, some other reason was given for referral. In 19 patients this was to allow relatives to go on holiday. In a further 12 patients the stated reason was to relieve the family, though no specific mention was made of holidays. In 25 patients the reason was convalescence and in a further 7 terminal care. Other terminally ill patients were included under either "gravity of illness" or a need of "intensive nursing care".

3. DIAGNOSIS

The actual diagnoses made by the general practitioners will be analysed in the next chapter when compared with the diagnosis on discharge from hospital.

It is apparent from the analysis of these questionnaires that in 60 per cent of cases the general practitioner was "certain" of the diagnosis and in only 8 per cent was the patient's condition undiagnosed.

Investigations

In two out of five hospital referrals there had been some investigation before admission; 24 per cent of patients had been investigated by their own general practitioner, 16 per cent had had investigations either on a previous hospital admission or at an out-patient clinic; the remaining 60 per cent had no investigations.

The majority of the investigations before admission were clinical or a combination of clinical with some specific investigation procedure. Of patients who were investigated, 19 per cent had had laboratory investigation, 14 per cent an X-ray and 3 per cent an electrocardiograph, to which must be added a proportion of the 30 per cent of patients who had a combination of procedures.

## CONCLUSION

The acute onset of illness is more characteristic of those patients admitted to a general rather than a cottage hospital, and in a quarter of the patients there had been a similar previous episode which merited admission to hospital.

The reasons for the general practitioners' choice of hospital show that "gravity of illness" and the need for "nursing care" are more common in an admission to a cottage hospital, while the need for "investigation" and "special treatment" characterise a general hospital admission. The cottage hospitals admit more patients living alone or in social need than the general hospitals.

In four out of five referrals to hospital for in-patient care the general practitioner was fairly certain of the diagnosis. In two-fifths of the patients some investigations had been carried out, mostly laboratory investigations.

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# CHAPTER 9

## IN-PATIENT SUMMARY

## IN-PATIENT SUMMARY

### RESULTS

When a patient leaves the ward or dies, a hospital discharge summary (SMR.1) is completed. This document is used for the preparation of data for storage on a computer file. Information was made available from this source for every patient admitted to hospital during the study year from any of the six practices.

It should again be noted that only a very small number of patients remain in hospital for longer than one year, and therefore in this study "discharges" have been taken to equate with "admissions".

A total of 1730 hospital discharge records were identified, 263 of these being patients discharged from a cottage hospital and 1,467 patients discharged from an Aberdeen hospital. Table 17 shows that the age distribution of these two groups of patients was very different. In the cottage hospital two-thirds of the patients were over 65 years of age, while in the Aberdeen hospitals only one-third of the patients were over 65 years of age. Conversely, the under 45 years age group accounted for 41 per cent of the Aberdeen discharges and only 17 per cent of the discharges from a cottage hospital. The differences between the two groups of hospitals, for the older patients, increased with

TABLE 17

IN-PATIENT REFERRAL STUDY

HOSPITAL DISCHARGES BY AGE, BY SEX AND HOSPITAL

| Age Group (years) | COTTAGE HOSPITALS | | | ABERDEEN HOSPITALS | | |
|---|---|---|---|---|---|---|
| | Male (%) | Female (%) | Total (%) | Male (%) | Female (%) | Total (%) |
| 0 - 4 | 1.5 | 1.5 | 1.5 | 8.7 | 5.5 | 7.3 |
| 5 - 14 | 2.3 | 0.8 | 1.5 | 11.7 | 10.4 | 11.1 |
| 15 - 24 | 3.8 | 3.8 | 3.8 | 6.4 | 6.1 | 6.3 |
| 25 - 34 | 4.5 | 5.4 | 4.9 | 4.8 | 9.5 | 6.9 |
| 35 - 44 | 5.3 | 4.6 | 4.9 | 7.4 | 11.9 | 9.4 |
| 45 - 54 | 6.0 | 3.8 | 4.9 | 12.2 | 11.8 | 12.0 |
| 55 - 64 | 7.5 | 14.6 | 11.0 | 15.7 | 11.9 | 14.0 |
| 65 - 74 | 30.1 | 21.5 | 25.9 | 21.9 | 17.3 | 19.8 |
| 75 + | 39.1 | 43.8 | 41.4 | 11.3 | 15.5 | 13.2 |
| TOTAL: | 100% | 100% | 100% | 100% | 100% | 100% |
| Total Patient Discharges | (133) | (130) | (263) | (814) | (653) | (1467) |

age - in the 65 - 74 year age group there was only a small difference (cottage hospitals 26 per cent, Aberdeen hospitals 20 per cent), while the group of patients aged over 75 years accounted for 41 per cent of cottage hospital discharges and only 13 per cent of Aberdeen hospital discharges.

Discharge rates

The combined discharge rate for all patients from both types of hospital was 51 per 1000 - and was higher for male patients (57 per 1000) than for female patients (45 per 1000). When the patients discharged from hospital were considered in relation to the population at risk the age/sex ratios showed different patterns (Table 18). In the cottage hospital the discharge rate remained at a fairly low figure up to the age of 65 years, the rate then doubled over the next decade and almost trebled in the ensuing decade. In the 55 - 64 year age group there was a higher discharge rate for female patients, but over the age of 65 this position was reversed, and the discharge rate for male patients was higher.

A different pattern emerged in the Aberdeen hospitals where the discharge rate was higher in the younger age groups - rising steadily from 20 per 1000 in the 15 - 24 age group to 53 per 1000 in the 55 - 64 year age group. There was a higher discharge rate for females in the 25 - 44 age group. Over the age of 65 the increase in discharge rate continued and in the 65 - 74 year old age group was 91 per 1000, as compared with 40 per 1000 in the cottage hospitals; and in the over 75 year age group was

TABLE 18

IN-PATIENT REFERRAL STUDY

DISCHARGE RATES per 1000 POPULATION

| Age Group (years) | COTTAGE HOSPITALS | | | ABERDEEN HOSPITALS | | |
|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total |
| 0 - 4 | 2.9 | 3.0 | 2.9 | 52.4 | 28.7 | 41.0 |
| 5 - 14 | 1.9 | 0.7 | 1.3 | 32.9 | 24.5 | 28.8 |
| 15 - 24 | 4.0 | 4.0 | 4.0 | 22.2 | 17.3 | 19.8 |
| 25 - 34 | 5.5 | 6.3 | 5.8 | 18.8 | 29.7 | 24.3 |
| 35 - 44 | 6.6 | 5.5 | 6.0 | 29.1 | 37.6 | 33.4 |
| 45 - 54 | 7.7 | 4.9 | 6.3 | 51.5 | 39.6 | 45.5 |
| 55 - 64 | 10.0 | 17.7 | 14.0 | 69.5 | 38.7 | 53.4 |
| 65 - 74 | 52.7 | 29.0 | 39.5 | 122.8 | 64.2 | 90.7 |
| 75 + | 143.6 | 92.4 | 111.3 | 129.0 | 88.0 | 103.7 |
| TOTAL: | 15.0 | 14.0 | 14.5 | 48.9 | 37.6 | 43.1 |
| Total Patient Discharges | (133) | (130) | (263) | (814) | (653) | (1467) |

| Cottage and Aberdeen Hospitals | | |
|---|---|---|
| Male | Female | Total |
| 56.9 | 45.1 | 50.9 |

104 per 1000 as compared with 111 per 1000 in the cottage hospitals. The discharge rate for male patients in the 65 - 74 age group was double that for female patients, but the increase in rate for male patients over the age of 75 years was only 6 per 1000, whereas the discharge rate for male patients in the cottage hospital increased by 91 per 1000 in the over 75 year age group.

The admission rates were calculated for comparison with the discharge rates. The pattern was similar to that described above, and this supported the contention that for the purpose of this study discharges were equivalent to admissions.

The cottage hospital played little part in the care of patients under the age of 65 but thereafter had an increasingly important role, particularly for male patients. The Aberdeen hospitals played a much more significant role for the under 55 year old patients, with a preponderance of female patients in the 25 - 44 age group, and in the older age groups the Aberdeen hospitals continued to play an important role in patient care.

Seasonal Variation

Hospital admissions showed little variation over the course of the year, with a maximum of 173 admissions in February and a minimum of 135 admissions in June. There was no particular trend in the number of admissions and it could be postulated, with a fixed number of beds, that there might be a variation in the severity of illness for which patients were admitted as the majority of social admissions to cottage hospitals occurred during the summer months.

Duration of Stay

Duration of stay increased with age (Table 19) and was greater in the cottage hospitals than in Aberdeen hospitals. Half the patients in Aberdeen hospitals were discharged within one week and a further quarter remained in hospital up to two weeks, whereas in the cottage hospitals a quarter of the patients were discharged within one week and a further one-fifth of patients stayed up to two weeks. Patients remaining in hospital more than 13 weeks comprised 8 per cent of all Aberdeen hospital patients, whereas 28 per cent of cottage hospital patients remained in hospital more than 13 weeks. In both the cottage hospital and Aberdeen hospitals the majority of patients under the age of 44 years were discharged within 14 days. In the 45 - 64 year age group, less than half the cottage hospital patients were discharged within 14 days while four-fifths of the Aberdeen hospital patients were discharged in that time. The difference becomes more striking over the age of 65 years.

Re-admission

The total of 1730 discharges included a number of patients who were admitted more than once in the year. The frequency of admission was, as follows:

Number/

TABLE 19

IN-PATIENT REFERRAL STUDY

HOSPITAL DISCHARGES BY DURATION OF STAY AND HOSPITAL

| Stay in Weeks | 0-14 yrs | | 15-44 yrs | | 45-64 yrs | | 65+ yrs | | All ages | |
|---|---|---|---|---|---|---|---|---|---|---|
| | C | A | C | A | C | A | C | A | C | A |
| 1 | 6 | 208 | 24 | 220 | 9 | 161 | 33 | 173 | 72 | 762 |
| % | 2.3 | 14.2 | 9.1 | 15.0 | 3.4 | 11.0 | 12.5 | 11.8 | 27.4 | 51.9 |
| 2 | 0 | 35 | 4 | 73 | 9 | 128 | 37 | 121 | 50 | 357 |
| % | - | 2.4 | 1.5 | 5.0 | 3.4 | 8.7 | 14.1 | 8.2 | 19.0 | 24.3 |
| 3 | 0 | 9 | 4 | 21 | 4 | 38 | 38 | 83 | 46 | 151 |
| % | - | 0.6 | 1.5 | 1.4 | 1.5 | 2.6 | 14.4 | 5.7 | 17.5 | 10.3 |
| 4 | 0 | 5 | 0 | 10 | 8 | 23 | 13 | 39 | 21 | 77 |
| % | - | 0.3 | - | 0.7 | 3.0 | 1.6 | 4.9 | 2.7 | 8.0 | 5.2 |
| 13 | 2 | 12 | 4 | 7 | 9 | 29 | 42 | 64 | 57 | 112 |
| % | 0.8 | 0.8 | 1.5 | 0.5 | 3.4 | 2.0 | 16.0 | 4.4 | 21.7 | 7.6 |
| 26 | 0 | 1 | 0 | 0 | 3 | 3 | 6 | 3 | 9 | 7 |
| % | - | 0.1 | - | - | 1.1 | 0.2 | 2.3 | 0.2 | 3.4 | 0.5 |
| 52 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 1 | 8 | 1 |
| % | - | - | - | - | - | - | 3.0 | 0.1 | 3.0 | 0.1 |
| 52 + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 8 | 270 | 36 | 331 | 42 | 382 | 177 | 484 | 236 | 1467 |
| % | 3.0 | 18.4 | 13.7 | 22.6 | 16.0 | 26.0 | 67.3 | 33.0 | 100.0 | 100.0 |

C = Cottage; A = Aberdeen

| Number of admissions per patient in study year | Total number of patients |
|---|---|
| 1 | 1186 |
| 2 | 191 |
| 3 | 38 |
| 4 | 6 |
| 5 | 2 |
| 6 | 1 |
| 7 | 1 |
| | 1425 |

It will be seen that 239 (16.8 per cent) patients were re-admitted. These 239 patients had a total of 543 admissions, this being a mean of 2.3 admissions per patient.

Diagnosis

The diagnosis of patients admitted to hospitals from the study practices will be considered as a whole. In the previous chapter when the general practitioner questionnaire was being analysed the doctor's actual diagnosis on admission was not discussed, as it was considered that it would be more relevant to deal with this subject in relation to the diagnosis on discharge from hospital.

In Table 20 the certainty of the general practitioner's diagnoses on referral to hospital was analysed by disease category. In general terms, he was fairly certain ("certain" and "probable")

## TABLE 20

### IN-PATIENT REFERRAL STUDY

### DIAGNOSTIC CERTAINTY ON ADMISSION TO HOSPITAL

| Disease Category | CERTAIN | | PROBABLE | | POSSIBLE | | UNDIAGNOSED | | TOTAL (100%) |
|---|---|---|---|---|---|---|---|---|---|
| | Cases | % | Cases | % | Cases | % | Cases | % | |
| I Infective and Parasitic | 14 | 52 | 10 | 37 | 3 | 11 | 0 | - | 27 |
| II Neoplasms | 112 | 65 | 35 | 20 | 19 | 11 | 7 | 4 | 173 |
| III Endocrine, Nutritional and Metabolic | 47 | 66 | 18 | 25 | 4 | 6 | 2 | 3 | 71 |
| IV Blood and Blood-forming Organs | 23 | 77 | 2 | 7 | 2 | 7 | 3 | 10 | 30 |
| V Mental Disorders | 8 | 44 | 8 | 44 | 2 | 11 | 0 | - | 18 |
| VI Nervous System and Sense Organs | 32 | 56 | 12 | 21 | 7 | 12 | 6 | 11 | 57 |
| VII Circulatory System | 229 | 66 | 91 | 26 | 18 | 5 | 9 | 3 | 347 |
| VIII Respiratory System | 71 | 66 | 31 | 29 | 5 | 5 | 0 | - | 107 |
| IX Digestive System | 152 | 45 | 117 | 34 | 45 | 13 | 27 | 8 | 341 |
| X Genito-Urinary System | 107 | 73 | 29 | 20 | 8 | 5 | 3 | 2 | 147 |
| XI Pregnancy, Childbirth and Puerperium | 6 | 75 | 1 | 13 | 1 | 13 | 0 | - | 8 |
| XII Skin and Subcutaneous Tissue | 25 | 76 | 6 | 18 | 2 | 6 | 0 | - | 33 |
| XIII Musculoskeletal System and Connective Tissue | 38 | 68 | 11 | 20 | 2 | 5 | 4 | 7 | 56 |
| XIV Congenital Anomalies | 26 | 96 | 1 | 4 | 0 | - | 0 | - | 27 |
| XV Perinatal Morbidity and Mortality | 2 | 66 | 0 | - | 1 | 33 | 0 | - | 3 |
| XVI Symptoms and Ill-defined Conditions | 111 | 40 | 63 | 23 | 13 | 5 | 93 | 33 | 280 |
| XVII Accidents, Poisonings and Violence | 96 | 76 | 22 | 17 | 6 | 5 | 2 | 2 | 126 |
| TOTAL: | 1099 | 59 | 457 | 25 | 139 | 8 | 156 | 8 | 1851 |

of his diagnosis in 84 per cent of patients and uncertain ("possible" and "undiagnosed") in 16 per cent of patients. The degree of certainty varied by disease category - being more confident for the following groups:

respiratory disease
skin disease
accidents and poisonings
genito-urinary disease
circulatory disease
endocrine disease

and less certain, in descending order, for the following:

mental disorders
musculoskeletal disease
neoplasms
blood disease
digestive system disease
central nervous system disease

The symptomatic group of diseases (category XVI) naturally contain the largest proportion of uncertain diagnoses (38 per cent) and a doctor could only be "uncertain" in such a diagnosis because it was symptomatic and in fact the whole of this category contains patients for whom the specific diagnosis was not known.

When the cottage hospitals and Aberdeen hospitals were compared it was found that the general practitioners were much more certain about the patients they admitted to the cottage hospital - 76 per cent of all patients admitted to a cottage

hospital had a "certain" diagnosis, as compared with 56 per cent of patients admitted to Aberdeen hospitals, and conversely only 1 per cent of patients admitted to cottage hospitals were "undiagnosed" as compared with 10 per cent of patients admitted to Aberdeen hospitals.

The high degree of certainty (93 per cent) for patients admitted to a cottage hospital with a neoplasm would suggest that many of these were patients who had already at some time been investigated in the Aberdeen hospitals where the diagnosis was confirmed. Diseases of the digestive system presented the general practitioner with a problem, as only 43 per cent of such patients admitted to Aberdeen hospitals had a "certain" diagnosis.

When some of the more common diagnoses were considered (Table 21) it was found that there was a varying pattern of certainty in the diagnoses. It was of note that doctors had a high degree of certainty with benign neoplasms where one might have expected much greater uncertainty. Thyroid disease appeared to be diagnosed on clinical grounds, as one might expect. In diseases of the circulatory system there was a marked difference in the certainty of diagnosis of ischaemic heart disease and cerebrovascular disease. With respiratory disease the higher certainty in diagnosing bronchitis and emphysema as compared with pneumonia may reflect that the diagnosis of the former condition is largely dependent on the history. In

TABLE 21

IN-PATIENT REFERRA L STUDY

DIAGNOSTIC CERTAINTY FOR SELECTED CONDITIONS

| Disease Category | Cases (100%) | Certain % | Probable % | Possible % | Undiagnosed % |
|---|---|---|---|---|---|
| Digestive organs | 33 | 48 | 27 | 18 | 6 |
| Benign neoplasms | 28 | 71 | 14 | 14 | - |
| Thyroid disease | 23 | 78 | 13 | 9 | - |
| Diseases of blood | 30 | 77 | 7 | 7 | 10 |
| Hypertensive disease | 31 | 65 | 16 | - | 10 |
| Ischaemic heart disease | 116 | 41 | 47 | 8 | 4 |
| Cerebrovascular disease | 46 | 74 | 20 | 7 | - |
| Pneumonia | 32 | 56 | 38 | 6 | - |
| Bronchitis, emphysema and asthma | 43 | 79 | 21 | - | - |
| Diseases of stomach and duodenum | 77 | 51 | 38 | 9 | 3 |
| Appendicitis | 72 | 19 | 54 | 24 | 3 |
| Hernia | 53 | 70 | 23 | 2 | 6 |
| Male genital disease | 84 | 82 | 15 | 2 | - |
| Female genital disease | 14 | 79 | 14 | 7 | - |
| Infections of skin | 18 | 83 | 11 | 6 | - |
| Arthritis and rheumatism | 34 | 65 | 24 | 3 | 9 |
| Accidents, poisoning, etc. | 126 | 76 | 17 | 5 | 2 |

diseases of the digestive system there was a marked difference in the certainty of diagnosis of appendicitis and hernia. The uncertainty in diagnosing appendicitis was probably greater than reflected in these figures as one would have to add similar patients in whom the diagnosis of "abdominal pain" had been made.

Hospital diagnosis

The diagnosis on admission to hospital was analysed (Table 22) and from this it was seen that there were different size groups of patients admitted to cottage and Aberdeen hospitals. The largest percentage of patients admitted to Aberdeen hospitals were those with diseases of the digestive system. Similar patients in cottage hospitals accounted for only 5 per cent of all diagnoses. This corresponds with the certainty of diagnosis shown in Table 20 where less than half the patients admitted to hospital with diseases of the digestive system had a "certain" diagnosis. The converse was seen in diseases of the respiratory system, which accounted for only 4 per cent of Aberdeen hospital admissions while they accounted for 13 per cent of cottage hospital admissions. Respiratory illness has been shown to rank highest in the number of "certain" and "probable" diagnoses and would probably account for the fact that general practitioners were quite happy to treat such patients in their own hospital beds.

TABLE 22

IN-PATIENT REFERRAL STUDY

FIRST DIAGNOSIS ON ADMISSION BY HOSPITAL

| | Disease Category | Cottage Hospitals | | Aberdeen Hospitals | |
|---|---|---|---|---|---|
| | | Admissions | % | Admissions | % |
| I | Infective and Parasitic | 3 | 0.9 | 25 | 1.6 |
| II | Neoplasms | 28 | 8.2 | 147 | 9.4 |
| III | Endocrine, Nutritional and Metabolic | 5 | 1.5 | 62 | 4.0 |
| IV | Blood and Blood-forming Organs | 3 | 0.9 | 28 | 1.8 |
| V | Mental Disorders | 8 | 2.3 | 10 | 0.6 |
| VI | Nervous System and Sense Organs | 20 | 5.9 | 38 | 2.4 |
| VII | Virculatory System | 73 | 21.4 | 279 | 17.9 |
| VIII | Respiratory System | 43 | 12.6 | 65 | 4.2 |
| IX | Digestive System | 17 | 5.0 | 325 | 20.8 |
| X | Genito-Urinary System | 14 | 4.1 | 133 | 8.5 |
| XI | Pregnancy, Childbirth and Puerperium | 3 | 0.9 | 5 | 0.3 |
| XII | Skin and Subcutaneous Tissue | 8 | 2.3 | 26 | 1.7 |
| XIII | Musculoskeletal System and Connective Tissue | 21 | 6.2 | 35 | 2.2 |
| XIV | Congenital Anomalies | 1 | 0.3 | 26 | 1.7 |
| XV | Perinatal Morbidity and Mortality | - | - | 3 | 0.2 |
| XVI | Symptoms and Ill-defined Conditions | 53 | 15.6 | 231 | 14.8 |
| XVII | Accidents, Poisonings and Violence | 41 | 12.0 | 124 | 7.9 |
| | TOTAL: | 341 | 100% | 1562 | 100% |

In both groups of hospitals, diseases of the circulatory system constituted a large part of the work-load, being 17.9 per cent of Aberdeen hospital admissions and 21.4 per cent of cottage hospital admissions. The patients with neoplasms admitted to cottage hospitals were mostly those requiring terminal care. It was surprising that 15.6 per cent of admissions to cottage hospitals were for ill-defined diseases. One might have expected that such patients would be admitted to one of the Aberdeen hospitals for fuller investigation, but on the other hand, many of these patients were in the older age groups and the general practitioner may have decided that symptomatic treatment was the correct course of action rather than more exhaustive investigation.

Admission and Discharge Diagnoses

It was possible to compare the diagnosis made by the general practitioner when referring the patient to hospital and the diagnosis on discharge from hospital. This has been done for all patients referred to Aberdeen hospitals (Table 23) - the cottage hospital admissions have been excluded as one would expect a high correlation between the admission and discharge diagnoses in cottage hospitals.

The greatest differences were in the ill-defined diseases where, as one would expect, many patients admitted with a symptomatic diagnosis had been re-categorised under a specific

TABLE 23

IN-PATIENT REFERRAL STUDY

FIRST DIAGNOSIS ON DISCHARGE FROM ABERDEEN HOSPITALS

| | Disease Category | Discharge Diagnoses | | Admission Diagnoses | |
|---|---|---|---|---|---|
| | | Cases | % | Cases | % |
| I | Infective and Parasitic | 25 | 1.8 | 25 | 1.6 |
| II | Neoplasms | 164 | 11.5 | 147 | 9.4 |
| III | Endocrine, Nutritional and Metabolic | 43 | 3.0 | 62 | 4.0 |
| IV | Blood and Blood-forming Organs | 23 | 1.6 | 28 | 1.8 |
| V | Mental Disorders | 10 | 0.7 | 10 | 0.6 |
| VI | Nervous System and Sense Organs | 38 | 2.7 | 38 | 2.4 |
| VII | Circulatory System | 254 | 17.8 | 279 | 17.9 |
| VIII | Respiratory System | 76 | 5.3 | 65 | 4.2 |
| IX | Digestive System | 280 | 19.6 | 325 | 20.8 |
| X | Genito-Urinary System | 138 | 9.6 | 133 | 8.5 |
| XI | Pregnancy, Childbirth and Puperperium | 2 | 0.1 | 5 | 0.3 |
| XII | Skin and Subcutaneous Tissue | 32 | 2.2 | 26 | 1.7 |
| XIII | Musculoskeletal System and Connective Tissue | 41 | 2.9 | 35 | 2.2 |
| XIV | Congenital anomalies | 36 | 2.5 | 26 | 1.7 |
| XV | Perinatal Morbidity and Mortality | 4 | 0.3 | 3 | 0.2 |
| XVI | Symptoms and Ill-defined Conditions | 174 | 12.2 | 231 | 14.8 |
| XVII | Accidents, Poisonings and Violence | 88 | 6.2 | 124 | 7.9 |
| | TOTAL: | 1428 | 100% | 1562 | 100% |

diagnosis following investigation. Conversely the diagnosis of neoplasms was lower on admission than on discharge - 17 patients being diagnosed as having a neoplasm during their hospital admission. The number of patients diagnosed with diseases of the respiratory system and genito-urinary system also showed an increase, while endocrine diseases and diseases of the digestive system showed a decrease. Certain groups of diseases showed virtually no change between the admission diagnosis and discharge diagnosis - these were the infective, blood, mental, nervous system and circulatory diseases.

The diagnoses made by the general practitioner when referring a patient to an Aberdeen hospital were compared with the diagnoses on discharge from hospital. They were found to agree on 53.4 per cent of occasions. On a further 17.0 per cent of admissions the lack of agreement was over a symptomatic diagnosis. For example, the general practitioner diagnosed acute appendicitis on 70 admissions, the hospital agreed on 32 patients, made a symptomatic diagnosis for 16 patients and disagreed on 22 occasions.

Therefore the general practitioner's diagnosis was "correct" in 7 out of 10 patients referred to hospital, though he tended to make rather more symptomatic diagnoses than the hospital.

There was a total of 2456 diagnoses, this being an average of 1.4 diagnoses for each patient discharge. Certain disease categories were found to have multiple diagnoses, such as patients with blood disease, hypertension, bronchitis and arterial disease, while other patients more commonly had only one diagnosis, such as appendicitis, neoplasm, hernia and prostatic hypertrophy.

Duration of Stay

The duration of stay varied considerably by age group and hospital. The mean duration of stay in Aberdeen hospitals and cottage hospitals for patients under the age of 45 years was 7 days. In the 45 - 64 year age group the mean duration rose to 11 days in the Aberdeen hospitals and 20 days in the cottage hospitals, while in the over 65 year age group the mean duration of stay in Aberdeen hospitals was 16 days and in the cottage hospitals 48 days. The average duration of stay for all hospitals in the North-East of Scotland was 17 days.

When this was examined in more detail it was found that there were variations for different diseases. From Table 24 it will be seen that there was little difference in the mean duration of stay between Aberdeen and cottage hospitals for patients with diseases of the digestive system, male and female patients with diseases of the genital organs, and for patients with ill-defined diseases. The mean duration of stay was

TABLE 24

IN-PATIENT REFERRAL STUDY

MEAN DURATION OF STAY FOR SELECTED CONDITIONS (in days)

| Disease Category | Mean Duration of Stay | |
|---|---|---|
| | Aberdeen Hospitals | Cottage Hospitals |
| Malignant neoplasms of digestive organs | 17 | 35 |
| Ischaemic heart disease | 11 | 21 |
| Cerebrovascular disease | 21 | 105 |
| Acute respiratory infections | 10 | 16 |
| Pneumonia | 16 | 38 |
| Bronchitis, emphysema and asthma | 14 | 23 |
| Diseases of stomach and duodenum | 9 | 11 |
| Diseases of male genital organs | 10 | 13 |
| Diseases of female genital organs | 8 | 4 |
| Arthritis and rheumatism | 15 | 22 |
| Pain in chest | 8 | 8 |
| Haematemesis | 11 | 15 |
| Abdominal pain | 6 | 5 |
| Pain referable to urinary system | 6 | 3 |
| Retention of urine | 10 | 18 |
| TOTAL: | 10 | 32 |

considerably higher in the cottage hospitals for patients with malignant neoplasms of digestive organs, ischaemic heart disease, diseases of veins, respiratory infections and arthritis and rheumatism. There was a marked difference in patients with cerebrovascular disease, as one might expect, where the role of the cottage hospital was the long term care of the hemiplegic patient.

Validation

The information relating to the patient's stay in hospital was obtained from the SMR.1 record held on computer file. Out of a total of 1730 admissions 8 per cent (141 records) were not found on the computer file. These records were manually traced and in 5 per cent of the records had been coded but not added to the computer file at the time of the search. The remaining 3 per cent included errors in coding or transcription and missing records. The full details of the validation of the SMR.1 information are given in Appendix VI.

CONCLUSION

Few of the younger patients were admitted to cottage hospitals, but over the age of 65 years the admissions rose steeply. The Aberdeen hospitals admitted many more younger patients, and in particular those women in the 25 - 44 year age group. At the same time the Aberdeen hospitals took their share of elderly patients, though the rate was slightly lower for the over 75 year olds than in cottage hospitals.

In patients under the age of 44 years the average duration of stay was less than 14 days in both types of hospital bed. Above this age the duration of stay in cottage hospitals became increasingly longer and a quarter of all patients were in hospital more than 13 weeks, as compared with 8 per cent in Aberdeen hospitals. Duration of stay in a cottage hospital bed was longest for patients with cerebrovascular disease.

The diagnoses of patients differed between Aberdeen and cottage hospitals. Patients with diseases of the digestive system accounted for 20 per cent of admissions to Aberdeen hospitals, but only 5 per cent of admissions to cottage hospitals. Conversely patients with diseases of the respiratory system accounted for only 4 per cent of admissions to Aberdeen hospitals as compared with 13 per cent to cottage hospitals.

The confidence with which a general practitioner made a diagnosis varied for different diseases, being higher for patients with respiratory diseases, skin diseases and accidents, and lower for patients with diseases of the central nervous system, digestive system and blood disorders. This diagnostic certainty affected the choices of hospital, as three-quarters of patients admitted to a cottage hospital had a "certain" diagnosis as compared with half the patients admitted to an Aberdeen hospital.

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# CHAPTER 10

## PATIENT QUESTIONNAIRE

## PATIENT QUESTIONNAIRE

The previous chapters have considered the reasons for the general practitioner's decision to refer the patient to hospital, and a summary of the in-patient care at the point when the patient was discharged from hospital.

This chapter will consider the condition of the patient a few weeks after discharge from hospital, and any difficulties he may have experienced in relation to the distance between hospital and his home.

### METHOD

At the end of each quarter during the study year a list was made of all patients over the age of 15 years who were known to have been discharged from hospital. In effect this meant that most patients had been discharged for about 2 months, with a range from 1 month to 3 months. The list was sent to each general practitioner for him to review and to remove any names of patients whom he did not wish to be approached for various reasons. A questionnaire (Appendix V) was then sent to each patient with the approval of their own general practitioner. No reminders were sent.

### RESULTS

During the study year there was a total of 1730 admissions involving 1425 patients. Of the latter, 1186 patients

had only one admission during the year and, after deleting those patients under the age if 15 years or known to be still in hospital, the names of 912 patients were listed and sent to their own general practitioners.

The general practitioners deleted the names of 143 (15.6 per cent) patients for various reasons:

| | |
|---|---|
| Dead | = 46 |
| Left area | = 23 |
| In hospital | = 10 |
| Other | = 64 |

Of the 64 patients deleted by the general practitioner for "other" reasons, many had no stated reason but sometimes an indication was given that the patient was unlikely to co-operate in answering a questionnaire.

Of the 769 questionnaires sent out, 639 were returned (83.1 per cent response); 103 of the completed questionnaires were from patients who had been wholly treated in a cottage hospital and 524 questionnaires were from patients who had been treated in Aberdeen or a combination of Aberdeen and a cottage hospital.

The purpose of the questionnaire was to identify two separate problem areas; the first being the extent to which patients were still unfit at the time of enquiry and in need of help of one sort or another; and the second being accessibility of hospital for the patient and visitors.

1. Fitness of patient

| "Are you now fit for work, or back to your normal activities?" | | | | |
|---|---|---|---|---|
| | Aberdeen Hospitals | | Cottage Hospitals | |
| Yes | 376 | 71.9% | 53 | 51.5% |
| No | 106 | 20.2% | 32 | 31.1% |
| N/S | 42 | 8.0% | 18 | 17.5% |
| | 524 | 100% | 103 | 100 % |

Sixty-eight per cent of patients stated that they were now fit for work and 22 per cent said they were not fit for work. It should be kept in mind that this was at a point approximately 2 months after discharge from hospital. The marked difference between patients in Aberdeen and cottage hospitals was related to the age of the patients.

Of those patients who answered the subsidiary question, "If 'yes', how long after leaving hospital?", 30 per cent were fit within one week, a further 30 per cent in 1 to 4 weeks and in 40 per cent of patients it was over a month before they were fit to return to normal duties.

| "If you are still NOT FIT..." | | | | |
|---|---|---|---|---|
| | Aberdeen Hospitals | | Cottage Hospitals | |
| "Are you able to dress yourself?" | | | | |
| Yes | 196 | 37.4% | 69 | 67.0% |
| No | 9 | 1.7% | 3 | 2.9% |
| Partial | 11 | 2.1% | 6 | 5.8% |
| N/S | 308 | 58.8% | 25 | 24.3% |
| | 524 | 100 % | 103 | 100 % |
| "Are you able to go out for a walk? | | | | |
| Yes | 154 | 29.4% | 47 | 45.6% |
| No | 38 | 7.3% | 21 | 20.4% |
| Limited | 24 | 4.6% | 9 | 8.7% |
| N/S | 308 | 58.8% | 26 | 25.2% |
| | 524 | 100 % | 103 | 100 % |
| "Is there anything you cannot do for yourself? | | | | |
| Yes | 58 | 11.1% | 22 | 21.4% |
| No | 150 | 28.6% | 45 | 43.7% |
| N/S | 316 | 60.3% | 36 | 35.0% |
| | 524 | 100 % | 103 | 100 % |

It was interesting to note that, whereas only 52 per cent of cottage hospital patients were "fit" (compared with 72 per cent of Aberdeen patients), the percentage of cottage hospital patients who were able to dress (67 per cent) and go out for a walk (46 per cent) was higher than the comparable "unfit" patients who had been in hospital in Aberdeen. This may indicate that more of the cottage hospital patients were kept in hospital until they were able to care for themselves at home.

There were 138 patients (22.0 per cent) who were not fit at the time of the questionnaire. From the questions presented to them concerning their ability to dress themselves, their fitness to go out for a walk or any other limitations, it was hoped to assess the degree of their independence.

Of the 138 who were not fit:

"Are you able to dress yourself?"

| | | | |
|---|---|---|---|
| yes | = | 116 | |
| no | = | 10 ) | 21 |
| partial | = | 11 ) | |
| N/S | = | 1 | |

"Are you able to go out for a walk?"

| | | | |
|---|---|---|---|
| yes | = | 76 | |
| no | = | 38 ) | 60 |
| limited | = | 22 ) | |
| N/S | = | 2 | |

"Is there anything you cannot do?"

| | | |
|---|---|---|
| yes | = | 56 |
| no | = | 70 |
| N/S | = | 12 |

Of the 116 who were not fit, but able to dress themselves:

"Are you able to go out for a walk?"

| | | | |
|---|---|---|---|
| yes | = | 72 | |
| no | = | 25 ) | 44 |
| limited | = | 19 ) | |

Of the 72 who were able to dress and go for a walk:

"Is there anything you cannot do?"

| | | |
|---|---|---|
| yes | = | 15 |
| no | = | 54 |
| N/S | = | 3 |

Related to the total sample of 627 patients, the degree of dependency among the 138 patients who were not fit for work or normal duties was:

| | | |
|---|---|---|
| Highly dependent (unable to dress) | = | 4.2% (26 patients) |
| Moderately dependent (unable to go for a walk) | = | 7.0% (44 " ) |
| Slightly dependent (some limitation | = | 2.4% (15 " ) |
| Independent | = | 8.6% (54 " ) |

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2. Dependency

| "Do you live alone?" | Aberdeen Hospitals | | Cottage Hospitals | |
|---|---|---|---|---|
| Yes | 59 | 11.3% | 25 | 24.3% |
| No | 464 | 88.6% | 78 | 75.5% |
| N/S , | 1 | 0.2% | 0 | - |
| | 524 | 100 % | 103 | 100 % |
| If NOT, who else lives in the house? | | | | |
| Spouse | 169 | 32.3% | 27 | 26.2% |
| Parents | 20 | 3.8% | 3 | 2.9% |
| Children | 6 | 1.1% | 7 | 6.8% |
| Siblings | 16 | 3.1% | 6 | 5.8% |
| Spouse and children | 175 | 33.4% | 20 | 19.4% |
| Parents and siblings | 27 | 5.2% | 1 | 1.0% |
| 3 generations and combination | 31 | 5.9% | 6 | 5.8% |
| Other relatives | 2 | 0.4% | 6 | 5.8% |
| Non-relatives | 19 | 3.6% | 2 | 1.9% |
| N/S + living alone | 59 | 11.3% | 25 | 24.3% |
| | 524 | 100 % | 103 | 100 % |

The response to this question showed that 13 per cent were living alone. Of those who were not living alone the majority (72 per cent) were living with their spouse. A further 23 per cent were living with their parents, children or siblings. Of the remainder, 1 per cent were living with other relatives and 4 per cent with non-relatives.

Twice as many of the cottage hospital patients lived alone when compared with patients admitted to an Aberdeen hospital. For those not living alone 60 per cent of the cottage hospital patients had a spouse, as compared with 74 per cent of the Aberdeen patients. These are probably age-related phenomena, as it has been noted in the previous chapter that two-thirds of the patients in cottage hospitals were over the age of 65 years, while in Aberdeen hospitals only one-third of the patients were over 65 years old.

"Does anyone come in to help you?"

| | Aberdeen Hospitals | | Cottage Hospitals | |
|---|---|---|---|---|
| Relative | 25 | 4.8% | 14 | 13.6% |
| Neighbour | 8 | 1.5% | 0 | - |
| Friend/private help | 7 | 1.3% | 4 | 3.9% |
| Combination of above | 14 | 2.7% | 5 | 4.9% |
| Home help | 19 | 3.6% | 7 | 6.8% |
| Social services (home help +) | 3 | 0.6% | 2 | 1.9% |
| Combination of 1,2,3+4,5 | 4 | 0.8% | 3 | 2.9% |
| None | 238 | 45.4% | 47 | 45.6% |
| N/S | 206 | 39.3% | 21 | 20.4% |
| | 524 | 100 % | 103 | 100 % |

Twelve per cent of patients received help from friends, neighbours or relatives, 5 per cent from home help and other social services and 46 per cent received no help. When this question was considered for the 138 patients who were not fit, it was found that the corresponding figures were 27 per cent, 6 per cent and 38 per cent.

It was not surprising that twice the number of unfit patients recorded help from relatives and others, but there was little difference in the help recorded from official sources (5.8 per cent compared to 4.9 per cent).

"Is the District Nurse attending you?"

| | Aberdeen Hospitals | | Cottage Hospitals | |
|---|---|---|---|---|
| Yes | 33 | 6.3% | 18 | 17.5% |
| No | 443 | 84.5% | 85 | 82.5% |
| Not now | 11 | 2.1% | 0 | - |
| N/S | 37 | 7.1% | 0 | - |
| | 524 | 100 % | 103 | 100 % |

From the total sample the District Nurse had been in attendance on almost 10 per cent of patients. As may be expected, this figure was much higher for patients who were still not fit, being 22 per cent. Again it was surprising that 76 per cent of the patients who were not fit were not being attended by the District Nurse.

Out of the 138 patients who were not fit, 53 replied that they were receiving no help of any kind and a further 25 did not answer the question. Of the 78 who received no help, or did not answer the question:

| | Able to dress | Go for walk | Any limitations |
|---|---|---|---|
| Of the 53 who answered "no" | | | |
| - yes | 46 | 36 | 16 |
| - no | 2, | 7 | 36 |
| - partial/limited | 5 . | 9 | - |
| - N/S | - | 1 | 1 |
| Of the 25 who did not answer | | | |
| - yes | 22 | 17 | 7 |
| - no | 2 | 4 | 16 |
| - partial/limited | 1 | 4 | - |
| - N/S | - | - | 2 |

From the first group 7 were limited in their ability to dress themselves and a further 3 from the second group were also unable to dress themselves. In other words, there were 10 patients who stated that they received no help and were limited in their ability to dress themselves. Furthermore, from this group of 78 patients, 30 per cent had some limitation in their ability to cope independently.

At this point it was possible to reconsider the over-all situation of the 84 patients who lived alone, in relation to their fitness and the help they received:

Are you now fit?

| | |
|---|---|
| yes | = 40 |
| no | = 27 |
| N/S | = 17 |
| | 84 |

If 'yes', how long after leaving hospital?

| | |
|---|---|
| immediately | = 4 |
| 1 week | = 8 |
| 1-2 weeks | = 4 |
| 2-4 weeks | = 8 |
| 4-8 weeks | = 5 |
| more than 8 weeks | = 6 |
| retired | = 11 |
| | 46 |

Does anyone come in to help you?

| | |
|---|---|
| relative | = 10 |
| neighbour | = 4 |
| friend | = 4 |
| combination of above | = 7 |
| home help | = 11 |
| social services | = 2 |
| any combination of above | = 4 |
| none | = 32 |
| N/S | = 10 |

Is the district nurse attending you?

| | |
|---|---|
| yes | = 17 |
| no | = 63 |
| not now | = 3 |
| N/S | = 1 |

Therefore only half of the patients living alone were fit at the time of completing the questionnaire. 38 per cent of this group received no help, and 75 per cent had not been attended by the District Nurse.

3. Accessibility

| "By what means of transport did you travel to hospital?" | Aberdeen Hospitals | | Cottage Hospitals | |
|---|---|---|---|---|
| Private car (W.V.S. car) | 259 | 49.4% | 39 | 37.9% |
| Hired car/taxi | 8 | 1.5% | 2 | 1.9% |
| Ambulance | 198 | 37.8% | 58 | 56.3% |
| Train | 16 | 3.1% | 0 | - |
| Bus | 27 | 5.2% | 1 | 1.0% |
| Combination of transport | 15 | 2.9% | 0 | - |
| Walking | 0 | - | 3 | 2.9% |
| N/S | 1 | 0.2% | 0 | - |
| | 524 | 100 % | 103 | 100 % |

Of the total sample, 48 per cent travelled by car and 41 per cent by ambulance. Fifty-six per cent of patients who were in the cottage hospitals travelled by ambulance, while of those in Aberdeen 38 per cent travelled by ambulance. This difference was also apparent when related to possession of a family car. Of the cottage hospital patients who possessed a family car, 54 per cent travelled by car, while 62 per cent of Aberdeen hospital patients who possessed a family car travelled by car.

This suggests that the mode of travel was a characteristic of the type of patients admitted to a cottage or an Aberdeen hospital, rather than the accessibility of the hospital.

"How did you travel home from hospital?"

| | Aberdeen Hospitals | | Cottage Hospitals | |
|---|---|---|---|---|
| Private car (W.V.S. car) | 368 | 70.2% | 78 | 75.7% |
| Hired car/taxi | 16 | 3.1% | 11 | 10.7% |
| Ambulance | 103 | 19.7% | 11 | 10.7% |
| Train | 9 | 1.7% | 0 | - |
| Bus | 14 | 2.7% | 0 | - |
| Combination of transport | 13 | 2.5% | 1 | 1.0% |
| Walking | 0 | - | 2 | 1.9% |
| N/S | 1 | 0.2% | 0 | - |
| | 524 | 100 % | 103 | 100 % |

Three-quarters of patients travelled home from hospital by car - this was 86 per cent from cottage hospitals and 73 per cent from Aberdeen hospitals. There was an interesting reversal of usage of the ambulance when travelling from hospital, in that fewer patients travelling home from the cottage hospitals (11 per cent) used an ambulance, as compared with those travelling from Aberdeen (20 per cent).

Sixty-two per cent of patients stated that they owned a family car. To be meaningful many other factors would need to be taken into consideration - such as, can anyone else in the family drive the car apart from the patient? Was the car otherwise used entirely for business purposes? And other questions that might relate to its availability for transpirt to and from hospital.

There were 391 patients who had a family car, and the influence of this on travel to and from hospital was analysed. Five of the replies did not state method of transport.

| | ABERDEEN | | COTTAGE HOSPITAL | | TOTAL | |
|---|---|---|---|---|---|---|
| | Transport | | Transport | | Transport | |
| | TO | FROM | TO | FROM | TO | FROM |
| Private car | 210 | 288 | 25 | 40 | 235 | 328 |
| Hired car/taxi | 4 | 5 | - | 3 | 4 | 8 |
| Ambulance | 101 | 31 | 21 | 3 | 122 | 34 |
| Train | 7 | 3 | - | - | 7 | 3 |
| Bus | 12 | 8 | - | - | 12 | 8 |
| Combination of transport | 6 | 5 | - | - | 6 | 5 |
| | 340 | 340 | 46 | 46 | 386 | 386 |

Ownership of a family car certainly increased the use of a car as transport to and from hospital. Car owners travelled to hospital by car on 61 per cent of occasions, as compared with 48 per cent of the total sample, and when travelling home from hospital a car was used on 85 per cent of occasions as compared with 71 per cent of the total sample.

Only 2 per cent of patients stated that they had any difficulty with transport home from hospital. A further 4 per cent had other difficulties such as home situation or the lack of somebody to accompany them. Ninety-four per cent of patients either had no difficulty or left the question unanswered, from which it may be reasonable to assume that they did not have a specific problem.

"When you were in hospital how often did you have visits from relatives or friends?"

| | Aberdeen Hospitals | | Cottage Hospitals | |
|---|---|---|---|---|
| Visits from relatives: | | | | |
| Every day | 272 | 51.9% | 56 | 54.4% |
| Most days | 143 | 27.3% | 29 | 28.2% |
| Once a week | 55 | 10.5% | 8 | 7.8% |
| Sometimes | 17 | 3.2% | 4 | 3.9% |
| Never | 22 | 4.2% | 2 | 1.9% |
| N/S | 15 | 2.9% | 4 | 3.9% |
| | 524 | 100 % | 103 | 100 % |
| Visits from friends: | | | | |
| Every day | 56 | 10.7% | 18 | 17.5% |
| Most days | 142 | 27.1% | 32 | 31.1% |
| Once a week | 65 | 12.4% | 8 | 7.8% |
| Sometimes | 134 | 25.6% | 29 | 28.2% |
| Never | 32 | 6.1% | 5 | 4.9% |
| N/S | 95 | 19.1% | 11 | 10.7% |
| | 524 | 100% | 103 | 100 % |

Almost 80 per cent of patients had frequent visits from relatives and 40 per cent had frequent visits from friends. Visiting by friends differed between Aberdeen and cottage hospitals. Thirty-eight per cent of Aberdeen patients had frequent (every day and most days) visits from friends, whereas in the cottage hospitals this figure was 49 per cent, presumably because they lived nearer to the hospital. The other difference that was noted was that 4 per cent of patients in Aberdeen never had a visit from a relative, as compared with 2 per cent in the cottage hospitals.

Obviously the question of visiting, particularly by relatives, is dependent on the patient having a living relative. Therefore, the patients living alone were analysed in respect of visitors.

When the 84 patients who stated that they were living alone were analysed it was found that 67 per cent of them had frequent visits from relatives and 41 per cent had frequent visits from friends. The somewhat greater difference in visits by relatives would suggest, perhaps, that it was a lack of a relative rather than willingness to visit.

CONCLUSION

One-quarter of all patients were still unfit one month after discharge - the proportion being much greater for the cottage hospital patients than for those who had been in an Aberdeen hospital. However, it was found that in the group of patients from Aberdeen hospitals, although there were fewer who were unfit they were more dependent, in terms of their ability to dress or go for a walk, than the cottage hospital patients.

The pattern of help showed that great reliance was placed on relatives and friends. Three-quarters of all patients had not been attended by the District Nurse, and only 5 per cent of patients had help from other official sources. The same pattern presented for those patients living alone, and ten patients who were limited even in their ability to dress themselves received no help. It was previously found that one in

five of the referrals to hospital were on the grounds of nursing or social needs. These findings, therefore, suggest that there is an area of patient need following discharge from hospital which may be unmet.

Travelling to and from hospital presented virtually no problems to the patient. The use of the ambulance in travel to hospital was greater for the cottage hospital patients, but the reverse was found in travelling home from hospital. The ease of access to a cottage hospital would certainly seem to have a favourable influence on the frequency of visiting by relatives and friends.

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# CHAPTER 11

# RESTRICTED ADMISSIONS TO ABERDEEN HOSPITALS

## RESTRICTED ADMISSIONS TO ABERDEEN HOSPITALS

An opportunity arose during the period of the study to carry out an examination of the admission of patients under a curtailment of hospital services. In February 1973 a series of strikes by ancillary staff in the hospital services culminated in a decision on the 1st March 1973 by the North-Eastern Regional Hospital Board to reduce the admissions to hpspital, and to limit these to acute emergencies and urgent waiting list patients. This curtailment of hospital services due to Industrial Action lasted until 3rd April 1973. Thus the four weeks of March 1973 provided an opportunity to examine hospital admissions under conditions where a general practitioner would have to decide that such an admission was imperative.

### ANALYSIS

During March 1973 there were a total of 143 patients admitted to hospital from the six practices participating in the In-patient Referral Study. Twenty-six of these admissions (18.2 per cent) were to a cottage hospital and 117 (81.8 per cent) to a hospital in Aberdeen. In order to examine those patients who required admission to a general hospital, even under the restrictions imposed by industrial action, information relating to the 117 patients admitted to Aberdeen has been analysed.

There were another 15 patients admitted to hospital during March who were, in fact, transfers from other hospitals or hospital units and had been originally admitted before 1st March. They included 3 new-born babies transferred from the Maternity Hospital to the Paediatric Unit, 8 patients transferred to a convalescent hospital and 4 other transfer patients.

Reasons for Admission to Hospital

All the general practitioners included in this study were asked to complete a questionnaire when they admitted a patient to hospital. One hundred and sixteen such questionnaires were returned by general practitioners, and the replies were compared with the 1790 questionnaires for the other 11 months of the study period.

A medical reason was given for admission to hospital in 90 per cent of patients and in over half of these the "gravity" of illness was the main reason. In 20 per cent of the replies a nursing reason was given, and in the majority this was the need for intensive nursing care. In 12 patients a nursing requirement was the only reason, no medical reason being given, and in half of these patients there were inadequate home conditions. Social reasons were mentioned in 11 per cent of questionnaires and in three-quarters of these patients it was the fact that they were living alone.

The differences may be summarised, as follows:

| | March | | Remainder of year | |
|---|---|---|---|---|
| (a) a shorter duration of illness, in terms of hours and days, as compared with weeks or months | 53.6% | (60) | 46.0% | (784) |
| (b) patient more seriously ill, as indicated by "gravity of illness" as a reason for admission | 56.7% | (59) | 40.2% | (665) |
| (c) the above is further supported by the requirement of intensive nursing care as a reason for admission | 69.7% | (23) | 57.1% | (178) |
| (d) the patient required more immediate admission to hospital (immediate or within 48 hours) | 67.9% | (76) | 50.8% | (876) |
| (e) the general practitioner had carried out investigations on more of these patients | 36.0% | (31) | 29.2% | (414) |
| (f) where an investigation was performed it was more frequently a laboratory investigation, and | 11.6% | (10) | 9.0% | (136) |
| less frequently an X-Ray | 3.5% | ( 3) | 7.1% | (101) |
| (g) given a choice the general practitioner would be more likely to choose a cottage hospital | 25.7% | (29) | 18.3% | (315) |

Diagnosis

When the diagnostic categories of patients admitted to hospital during March were compared with those of patients admitted during the rest of the year, certain differences were found.

A higher proportion of the admissions were for patients with malignant disease (19 per cent, as compared with 12 per cent)

or patients who had had an accident (15 per cent, compared with 6 per cent). Three of the 19 patients with neoplasms were admitted twice during the month. These two groups of patients would, therefore, appear to have a high priority for admission.

A lower proportion of admissions were for patients with diseases of the circulatory system (13 per cent compared with 18 per cent) or the digestive system (13 per cent compared with 18 per cent). This may suggest that general practitioners were prepared to treat these patients at home when hospital beds were restricted.

Age and Sex

Fifty-four male patients were admitted and 63 female patients. Almost one-third of the emergency and waiting list admissions were over the age of 65 years. If the patients were divided into those under 45 and those over 45 years, a difference was found between the emergency and waiting list. The under 45 age group included 41 per cent of the emergency admissions and only 17 per cent of the waiting list admissions, whereas the over 45 age group included 59 per cent of the emergency admissions and 83 per cent of the waiting list admissions.

Days Stay

Table 25 summarises the duration of stay of the 117 patients. Almost three-quarters of them were discharged within

TABLE 25

ADMISSIONS TO ABERDEEN HOSPITALS - MARCH, 1973

DURATION OF STAY (days)

| Days | Patients | Cumulative Percentage |
|---|---|---|
| 1 - 7 | 58 (50.4%) | 50.4% |
| 8 - 14 | 26 (22.2%) | 72.6% |
| 15 - 21 | 17 (14.5%) | 87.2% |
| 22 - 28 | 8 ( 6.8%) | 94.0% |
| Over 28 | 7 ( 6.0%) | 100.0% |
| | 117 (100 %) | |

6 patients (5.1%) were in hospital longer than 30 days, their average stay being 61 days (range 32 - 125 days).

14 days and "long stay" patients (duration of stay more than 30 days) were only 5 per cent of the total. The average duration of stay was 10.9 days with a small difference between the emergency admissions with an average stay of 11.7 days, and the waiting list admissions with an average stay of 9.9 days.

Unit of Admission

Almost a quarter of all the patients were admitted to two units - General Surgery and General Medicine (Table 26). Of the 23 emergency admissions to a General Medical Unit, 5 patients had a neoplasm, 7 patients disease of the circulatory system and 6 patients disease of the digestive system. It will be seen from the table that the average duration of stay varied considerably for different units.

Waiting List

Forty per cent of the admissions from the six practices were waiting list admissions. Patients admitted to the units of General Surgery, Orthopaedic Surgery and General Medicine were only on the waiting list for one week or less on average, and this would suggest that these patients came into a semi-emergency category. The average wait for admission to a Gynaecological Unit was 38 days; this included some patients for termination of pregnancy whose waiting time was only a few days, and those with menstrual irregularity who had been on the waiting list for up to 121 days, and without further information this latter figure could include some patients who were on the waiting list but whose condition had deteriorated.

TABLE 26

ADMISSIONS TO ABERDEEN HOSPITALS - MARCH, 1973

UNIT ON ADMISSION

| Unit | EMERGENCIES | | WAITING LIST | | TOTAL | |
|---|---|---|---|---|---|---|
| | Cases | Average stay (days) | Cases | Average stay (days) | Cases | Average stay (days) |
| General Surgery | 14 | 11.7 | 16 | 12.4 | 30 | 12.1 |
| Orthopaedic Surgery | 9 | 24.1 | 1 | 5.0 | 10 | 22.2 |
| Other surgical | 4 | 6.0 | 3 | 12.7 | 7 | 9.0 |
| Urology | 1 | 12.0 | 6 | 2.5 | 7 | 3.9 |
| Paediatric | 8 | 6.0 | 1 | 5.0 | 9 | 5.9 |
| General Medicine | 23 | 11.1 | 8 | 12.4 | 31 | 11.4 |
| Cardiology | 3 | 11.3 | nil | - | 3 | 11.3 |
| Other medical | 2 | * | nil | - | 2 | * |
| Gynaecology | 6 | 6.7 | 12 | 6.3 | 18 | 6.4 |
| TOTAL: | 70 | 11.7 | 47 | 9.9 | 117 | 10.9 |

* Average stay not given as one patient in hospital for 125 days with rheumatoid arthritis.

Discharge Category

Eighty per cent of patients were discharged home (Table 27). There was a difference in the discharge home category between patients who were emergency admissions and patients who were waiting list admissions. This difference was to a certain extent made up by the fact that 8 of the emergency admissions died, while none of the patients admitted from the waiting list died. The remainder of the difference was accounted for by transfers to other hospitals or local authority care.

The 8 patients who died come into three diagnostic categories: neoplasms, circulatory disease and disease of the digestive system. The one patient with neoplasm was in hospital for the longest time, while those with heart disease died within a few days of admission to hospital. There was one other death from acute myocardial infarction in a patient admitted to a cottage hospital and then transferred to a General Medical Unit; as this patient was initially admitted to a cottage hospital he was not included among the 117 patients being considered.

CONCLUSION

These findings would suggest that under emergency conditions the general practitioner responded by only admitting the more seriously ill patients, that he investigated such

TABLE 27

ADMISSIONS TO ABERDEEN HOSPITALS - MARCH, 1973

DISCHARGE CATEGORY

| Discharge Category | Emergencies | Waiting List | Total |
|---|---|---|---|
| Home | 51 (72.9%) | 43 (91.4%) | 94 |
| Convalescent Hospital | 3 ( 4.3%) | 2 ( 4.3%) | 5 |
| Transfer | 7 (10.0%) | 2 ( 4.3%) | 9 |
| Died | 8 (11.4%) | - | 8 |
| Irregular | 1 ( 1.4%) | - | 1 |

(Transfer includes to other hospital or Local Authority care.)

patients more carefully before admitting them to hospital, and given a choice, would be more prepared to look after the patient in a general practitioner bed.

The priority for admission was given to those patients with malignant disease or who had had an accident. On the other hand, general practitioners were more likely to treat some patients with cardiovascular or digestive system diseases at home when there was a restriction on hospital beds.

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# CHAPTER 12

# CIRCULATORY AND DIGESTIVE DISEASES

## CIRCULATORY AND DIGESTIVE DISEASES

During the study year two out of every five patients admitted to hospital had diseases of the circulatory or digestive systems. There were 317 patients with circulatory diseases and 291 patients with digestive diseases.

In the previous chapter it was shown that it was in these two groups of patients that general practitioners were most likely to vary their admission to Aberdeen hospital beds.

This chapter will, therefore, consider some of the variables - the reason for admission to hospital; duration of stay; and outcome for patients with diseases of the circulatory and digestive systems.

### Reasons for Admission

These were the reasons stated by the general practitioner on the questionnaire relating to the referral of the patient for admission to hospital.

It was found that there were differing emphases in the various disease categories (Table 28). In the diseases of the circulatory system the "gravity" of illness was more significant in heart disease and cerebrovascular disease - these patients also were more in need of intensive nursing care. On the other

## TABLE 28

## DISEASES OF CIRCULATORY AND DIGESTIVE SYSTEMS

### REASONS FOR ADMISSION TO HOSPITAL

| DISEASE CATEGORY | MEDICAL | | NURSING | | TOTAL |
|---|---|---|---|---|---|
| | Gravity of illness | Investigation and treatment | Requires intensive nursing | Inadequate home facilities | |
| CIRCULATORY DISEASES | | | | | |
| Hypertensive disease | 3 | 25 | 3 | 2 | 33 |
| Ischaemic heart disease | 89 | 19 | 38 | 4 | 150 |
| Other heart disease | 24 | 8 | 9 | 3 | 44 |
| Cerebrovascular disease | 29 | 11 | 22 | 5 | 67 |
| Diseases of arteries | 19 | 36 | 9 | 0 | 64 |
| Diseases of veins | 13 | 55 | 2 | 5 | 75 |
| DIGESTIVE DISEASES | | | | | |
| Disease of stomach and duodenum | 29 | 47 | 5 | 4 | 85 |
| Appendicitis | 46 | 26 | 0 | 0 | 72 |
| Hernia of abdominal cavity | 11 | 42 | 0 | 0 | 53 |
| Other diseases of intestines | 34 | 45 | 4 | 4 | 87 |
| Diseases of liver, gall-bladder and pancreas | 13 | 33 | 0 | 1 | 47 |

hand, patients with hypertensive disease and diseases of arteries or veins were more likely to be admitted for investigation and treatment.

In diseases of the digestive system, patients with appendicitis were mostly referred because of the "gravity" of illness. With the diseases of stomach, duodenum and intestine more patients were admitted for investigation and treatment or for intensive nursing care. Hernia and diseases of liver, gall bladder and pancreas were mostly admitted for investigation and treatment.

Duration of Stay

The median duration of stay and the range for each disease category were calculated (Table 29), for patients from the three practices with a choice of hospital and for the practices without a choice of hospital.

In general terms it would seem that patients admitted to Aberdeen, whether from a practice with or a practice without a choice of hospital, experienced a similar duration of stay. It might have been expected that those patients from practices with a choice of hospital who were admitted to Aberdeen would have had a shorter duration of stay than the practices without a choice.

Patients admitted to Aberdeen from the two groups of practices did not show any striking difference except for patients

TABLE 29

DISEASES OF CIRCULATORY AND DIGESTIVE SYSTEMS

MEDIAN DURATION OF STAY (days)

| Disease Category | PRACTICES | | | | | |
|---|---|---|---|---|---|---|
| | WITHOUT choice | | WITH choice of hospital | | | |
| | ABERDEEN | | ABERDEEN | | COTTAGE | |
| | < 65 yrs | 65+ yrs | <65 yrs | 65+ yrs | <65 yrs | 65+ yrs |
| CIRCULATORY DISEASES | | | | | | |
| Hypertensive disease | 7 | - | 8 | 13 | - | - |
| range | 2-10 | - | 2-22 | 10-15 | - | - |
| Ischaemic heart disease | 20 | 10 | 17 | 18 | 10 | 14 |
| range | 2-85 | 1-40 | 2-49 | 2-32 | 6-51 | 2-93 |
| Other forms of heart disease | 12 | 17 | 13 | 11 | 37 | 35 |
| range | 6-20 | 1-42 | 1-110 | 2-37 | 2-72 | 2-252 |
| Cerebrovascular disease | 10 | 16 | 1 | 36 | 4 | 34 |
| range | 6-27 | 1-45 | * | 2-165 | * | 2-211 |
| Disease of arteries | 4 | 7 | 5 | 13 | 24 | 18 |
| range | 3-16 | 2-17 | 3-29 | 3-71 | * | 17-216 |
| Diseases of veins | 6 | 11 | 6 | 11 | 47 | 18 |
| range | 2-26 | 2-74 | 2-155 | 1-15 | * | 9-73 |
| DIGESTIVE DISEASES | | | | | | |
| Diseases of stomach and duodenum | 11 | 20 | 9 | 18 | 4 | 21 |
| range | 2-35 | 3-37 | 2-31 | 8-55 | * | 7-38 |
| Appendicitis | 8 | 10 | 7 | 12 | - | - |
| range | 4-17 | 7-23 | 5-14 | 9-15 | - | - |
| Hernia of Abdominal cavity | 7 | 11 | 4 | 7 | - | - |
| range | 3-30 | 4-20 | 3-8 | 4-16 | - | - |
| Other diseases of intestine | 4 | 12 | 8 | 8 | 4 | 130 |
| range | 2-42 | 2-32 | 2-22 | 1-56 | 3-5 | 23-225 |
| Diseases of liver, gall-bladder and pancreas | 13 | 16 | 14 | 14 | 6 | 26 |
| range | 5-36 | 4-49 | 3-26 | 3-85 | * | 23-29 |

over the age of 65 years with cerebrovascular disease. In this group of patients those admitted to Aberdeen from practices with a choice of hospital had a median duration of stay of 36 days, as compared with 16 days for those patients without a choice of hospital.

In patients with circulatory disease it was found that those who were admitted to a cottage hospital had a longer duration of stay than those admitted to an Aberdeen hospital. In the patients with diseases of the digestive system there was a much greater similarity in the duration of stay for patients with all categories of disease, irrespective of whether they were admitted to a cottage or Aberdeen hospital. The only difference being that there were no patients admitted to a cottage hospital with appendicitis or hernia and conversely there was a very long median duration of stay for elderly patients with other diseases of the intestine.

Outcome

The outcome of the patients' stay in hospital was determined for each of the two groups of practices in terms of whether the patient died in hospital or was discharged home (Table 30).

The over-all death rate of patients admitted from any of the practices with circulatory disease was 25 per cent, whereas the over-all death rate in patients admitted with digestive disease was only 2 per cent.

TABLE 30

DISEASES OF CIRCULATORY AND DIGESTIVE SYSTEMS

OUTCOME OF HOSPITAL CARE

A. CIRCULATORY DISEASES

| Selected Practices | Age Group (years) | | | | Total |
|---|---|---|---|---|---|
| | 0-14 | 15-44 | 45-64 | 65+ | |
| 1. Practices WITHOUT choice | | | | | |
| ABERDEEN | | | | | |
| Discharged home | 1 | 21 | 51 | 41 | 114 |
| Died in hospital | 0 | 0 | 5 | 21 | 26 |
| TOTAL: | 1 | 21 | 56 | 62 | 140 |
| 2. Practices WITH choice | | | | | |
| ABERDEEN | | | | | |
| Discharged home | 0 | 13 | 40 | 42 | 95 |
| Died in hospital | 0 | 1 | 3 | 16 | 20 |
| TOTAL: | 0 | 14 | 43 | 58 | 115 |
| COTTAGE | | | | | |
| Discharged home | 0 | 1 | 6 | 31 | 38 |
| Died in hospital | 0 | 0 | 2 | 22 | 24 |
| TOTAL: | 0 | 1 | 8 | 53 | 62 |

TABLE 30

DISEASES OF CIRCULATORY AND DIGESTIVE SYSTEMS

OUTCOME OF HOSPITAL CARE

B. DIGESTIVE DISEASES

| Selected Practices | Age Group (years) | | | | Total |
|---|---|---|---|---|---|
| | 0-14 | 15-44 | 45-64 | 65+ | |
| 1. Practices WITHOUT choice | | | | | |
| ABERDEEN | | | | | |
| Discharged home | 15 | 36 | 43 | 49 | 143 |
| Died in hospital | 0 | 1 | 0 | 6 | 7 |
| TOTAL: | 15 | 37 | 43 | 55 | 150 |
| 2. Practices WITH choice | | | | | |
| ABERDEEN | | | | | |
| Discharged home | 11 | 40 | 38 | 33 | 122 |
| Died in hospital | 0 | 0 | 1 | 2 | 3 |
| TOTAL: | 11 | 40 | 39 | 35 | 125 |
| COTTAGE | | | | | |
| Discharged home | 1 | 1 | 2 | 12 | 16 |
| Died in hospital | 0 | 0 | 0 | 0 | 0 |
| TOTAL: | 1 | 1 | 2 | 12 | 15 |

In the practices without a choice of hospital, death accounted for 17 per cent of patients admitted with circulatory diseases and 5 per cent of those admitted with digestive diseases. By comparison, in the practices with a choice of hospital the percentage of patients dying in an Aberdeen hospital was the same but in the cottage hospital 39 per cent of patients with circulatory disease died, whereas there were no deaths in patients with digestive diseases - this latter result suggests that general practitioners may carefully select those patients that they admit to a cottage hospital with digestive diseases, whereas in those with circulatory diseases they accept that many do not have a good prognosis. This point is emphasised when the outcome of hospital admission is considered for those patients aged over 65 years with circulatory disease. From the practices without a choice of hospital 34 per cent of those patients died in hospital, whereas from the practices with a choice 28 per cent of those admitted to Aberdeen died and 42 per cent of the patients admitted to a cottage hospital died.

Selected Disease Categories

For the individual patient admitted to hospital, some predictions may be made on the basis of the characteristics of the disease groups.

A./

A. Ischaemic Heart Disease

Sixty per cent of these patients were admitted on account of the gravity of their illness and 25 per cent required intensive nursing care. The average duration of stay was 14 days for all age groups and irrespective of whether the patient was admitted to Aberdeen or a cottage hospital. One-quarter of the patients admitted to Aberdeen hospitals died and 9 out of 10 patients admitted to cottage hospitals with ischaemic heart disease died - though it should be noted that the majority of patients were aged over 65 years.

B. Cerebrovascular Disease

Forty-three per cent of these patients were admitted on account of the gravity of their illness and 33 per cent were in need of intensive nursing care, with a further 7 per cent for whom there were inadequate facilities for home nursing. The average duration of stay for patients admitted to Aberdeen hospitals was two weeks for those under 65 years and 25 days for those over 65 years. Patients admitted to cottage hospitals tended to remain in hospital for a much longer period of time, the median duration of stay being 34 days for those over 65 years. Half the patients admitted to an Aberdeen hospital died and a similar pattern existed in the cottage hospitals.

C. Diseases of Stomach and Duodenum

Half of these patients were admitted for investigation and treatment and a further one-third of patients were admitted on account of the gravity of their illness. The duration of stay

was similar whether the patient was admitted to an Aberdeen or cottage hospital, being 10 days for those under 65 years and 20 days for those over 65 years. The majority of patients admitted to Aberdeen hospitals were discharged home and only 2 per cent died. There were no deaths in patients admitted to a cottage hospital.

D. Diseases of Liver, Gallbladder and Pancreas

Seventy per cent of these patients were admitted for investigation and treatment and the remainder were admitted on account of the gravity of their illness. The average duration of stay for patients admitted to Aberdeen hospitals was two weeks and for the older patients admitted to a cottage hospital this extended to just over three weeks. All the patients admitted to both groups of hospitals were discharged home; none of them died.

CONCLUSION

It would appear from a study of different disease categories that there was a different pattern of hospital usage. In patients with diseases of the circulatory system the need was much more commonly for medical and nursing care because of the gravity of illness, and it would appear that the general practitioners admitted to a cottage hospital those patients who were terminally ill. On the other hand, patients with diseases of the digestive system were more commonly admitted for investigation and treatment and the cottage hospitals played relatively little part in the management of this disease.

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# SECTION 4

## CONCLUSIONS

# CHAPTER 13

## DISCUSSION AND APPLICATION

# DISCUSSION AND APPLICATION

## GENERAL POLICY

Ten years ago the policy for the provision of hospital beds was based on the concept of the district general hospital supplying the needs of a population of a quarter million or more people. These 1000-bedded hospitals were to supply diagnostic and treatment facilities for in-patients and out-patients for most specialties. Certain highly specialised facilities (for example neurosurgery and plastic surgery) were to be available only in hospitals supplying the needs of a larger catchment area.

Implicit in this policy was seen to be the redundancy of the small hospitals within easy reach of the district general hospital. The only justification for retaining a small hospital was to be if it served the needs of a remote or inaccessible population. Even then its role was seen as being limited to the care of longstay geriatric patients or patients who had already been assessed and treated by a consultant in a district general hospital.

Over the last ten years a number of changes have occurred which necessitate a review of the role of the small peripheral hospitals. There is general agreement that 1000-bedded hospitals are too large. They necessitate patients travelling greater distances to a hospital which they may find to

be impersonal. Most of the large hospitals find difficulty in recruiting nursing staff and ancillary workers. At the same time the concept of concentrating expensive medical resources in one hospital is sound.

The second factor in the change of attitude has been the emphasis in the Brotherston Report (1971) on the need for further studies of the practical implications of making provision for general practitioner beds. This theme re-appeared in the subsequent report "General Practitioners in the Hospital Service" (1973) where the general practitioner hospitals were seen as still having a valuable contribution to make to health care.

More recently the re-organisation of the National Health Service and the current economic restrictions have necessitated a re-evaluation of the balance between expensive hospital services which are overused, and the contrasting under-financed general practitioner and community services. It has been stressed (B.M.J. editorial, 1974) that we can no longer afford the extravagant use of people and resources in providing medical care. In the hospital service, Wood (1974) has suggested that money could be saved by classifying the patients according to their need for care or technical equipment - for example, coronary care makes a high demand on the staff/patient ratio and the facilities required whereas rehabilitation and convalescence make a low demand on both.

These general considerations re-open the arguments for the retention of general practitioner beds in peripheral hospitals. Such hospitals make use of nursing and other staff available in the local community but not available to the central hospital, and enable the patient to be cared for without the added difficulties of travel for themselves or their relatives.

## LOCAL POLICY

Since the re-organisation of the National Health Service the Grampian Health Board has continued the policy of their predecessors, the North-East Regional Hospital Board, and planned to concentrate hospital facilities mainly in Aberdeen. It was recommended that over a quarter of the existing general practitioner hospital beds should be re-allocated to the care of long-term geriatric patients, one argument being that the majority of these beds were in fact already occupied by such patients.

## STUDY - FIRST PART

Two aspects of the role of general practitioner beds in the Grampian Area were considered in this study. A survey was made of all such beds in the Grampian Area over a period of one year, and,on the basis of this, proposals were made for a ratio for the provision of general practitioner beds. Secondly, an examination was made of the use of all hospital beds by two selected groups of practices, one group with access to cottage hospital beds and the other without access to such facilities.

The Grampian Area has a higher than national level of use of hospital beds. In the selected practices without access to cottage hospital beds, the total in-patient discharges were 10 per cent higher than the expected, and in the practices with cottage hospital beds the discharges were 20 per cent higher than expected. This supported the hypothesis that where cottage hospital facilities exist there will be a higher in-patieht rate.

Over half the patients admitted to general practitioner beds were over the age of 65 years. In terms of actual patients there was a preponderance of female patients, a finding that was similar to that for long-stay patients in Aberdeen hospitals (Sutherland, 1972). However, when the patients over 65 years were considered in relation to the specific population at risk, the age-specific discharge rate was higher for men.

Three-quarters of the patients admitted to a cottage hospital were fully treated there, and half of the remainder were patients transferred from Aberdeen for continuing care or convalescence. The common conditions treated in the cottage hospitals were cerebrovascular disease, bronchitis and pneumonia, ischaemic heart disease and neoplasms. During the year, 134 out of 3363 admissions were for patients with ill-defined diseases or senility, which emphasises the contribution of the cottage hospitals to the care of the elderly.

It is often said that cottage hospital beds are "blocked" by a large number of elderly patients. The fact that over half the patients were over 65 years increases the likelihood of this, and one-quarter of such patients were in hospital for more than four weeks. Thirty-five patients were in a cottage hospital for more than six months, and it is this relatively small number of patients that "blocks" the general practitioner beds.

It is always tempting to suggest that patients are unnecessarily admitted to hospital, but this study showed that the converse may also be true. An assessment of the unmet need in the West District of Grampian Area showed that there were patients who, in the opinion of their own general practitioner, should have been in hospital. Most of them were in need of nursing care, and four out of five were over the age of 65 years. Any restriction on the access to central hospital beds, either by lack of staff or industrial action, must inevitably place a greater burden on the community nursing services unless there is a rational provision of general practitioner beds.

On the basis of the current usage of cottage hospital beds, a ratio was calculated for the provision of general practitioner beds. There is at present no agreed official bed ratio, and the figures range from that suggested a century ago of 1 per 1000 to the more recent suggestions from the Oxford region of 2 per 1000. Allowing for the unmet need and for the

demand of patients currently treated in Aberdeen hospitals, but suitable for care in general practitioner beds, a general practitioner bed provision of 1.5 per 1000 population was suggested.

There are at present 16 peripheral hospitals in the Grampian Area with a total of 325 beds. Two of these hospitals are in the South District, and no change is proposed for them by the Grampian Health Board. However, in the other two districts it is proposed that the general practitioner beds be reduced by 28 per cent, from 298 beds to 215 beds.

The proposed general practitioner bed ratio of 1.5 per 1000 has been accepted by the Medical Sub-Committee of Grampian West and Grampian North Districts and used in their discussions with the Grampian Health Board. While it is recognised that there is a finite number of beds for the defined populations, a bed ratio gives a basis for discussion on the comparative numbers of geriatric and general practitioner beds in the peripheral hospitals.

STUDY - SECOND PART

The second part of this study was based on a comparison of all in-patient referrals by twenty general practitioners during one year. Ten of the doctors had access to a cottage hospital as well as to Aberdeen hospitals, while the other ten

had no cottage hospital facilities for their patients. The aim was to compare the reasons for the referral of different groups of patients to different hospitals, and to compare the hospital experience of these patients.

The availability of a hospital bed is often the controlling factor and may not be related to the general practitioners' "choice" for the particular patient. However, the doctors were asked to indicate their hospital preference as if a choice existed, and it is on this basis that the groups of patients were compared.

In four out of five admissions to hospital, the general practitioner was fairly certain of his diagnosis. This was confirmed by comparing the general practitioner's diagnosis when referring the patient to hospital and the diagnosis made by the hospital on discharge, when it was found that in seven out of ten patients there was agreement on the diagnosis.

Of the patients who were admitted to a cottage hospital the majority were referred because of the "gravity" of their illness or the need for nursing care, often because they were living alone. Patients admitted to an Aberdeen hospital were characterised by the need for "investigation" or "special treatment".

When a restriction was imposed on the availability of hospital beds in Aberdeen, the general practitioners responded by being more selective in the patients they referred. Only the more seriously ill were admitted and the general practitioner investigated more of the patients himself before referring them to hospital.

The patients involved in such an alteration of hospital admission policy fell into two categories - those who required to be admitted to an Aberdeen hospital under any conditions (for example, patients with malignant disease or those who had had an accident), and those who could be treated at home (for example, certain patients with circulatory or digestive diseases).

Few of the younger patients were admitted to a cottage hospital and, while Aberdeen hospitals took their share, the majority of patients admitted to a general practitioner bed were over 65 years.

One-quarter of the patients over 65 years admitted to a cottage hospital remained there for more than 12 weeks, many of these being patients with cerebrovascular disease. It is not surprising, therefore, that nearly half of these patients died in hospital. This highlights one of the valuable roles of the cottage hospital in the terminal care of the elderly patieht.

It was found that the patients who were admitted to a cottage hospital more commonly had circulatory or respiratory disease. In these patients the general practitioners were more

"certain" of the diagnosis. Conversely, patients with diseases of the digestive system were more commonly admitted to an Aberdeen hospital, and in only half of these patients was the doctor "certain" of the diagnosis on referral.

The accessibility of a hospital has often been stated to be a problem. For the patients in this study travelling did not present a problem, although a few patients did experience difficulty in getting home. As far as visitors were concerned, the ease of access to a cottage hospital favourably influenced the frequency of visiting by relatives and friends, as compared with those patients who were in an Aberdeen hospital.

The care of the patient after discharge from either a cottage hospital or an Aberdeen hospital places an increased workload on the general practitioner and community services. It was found that the patients discharged from Aberdeen hospitals were more dependent, in terms of their ability to dress or go for a walk, than the cottage hospital patients. In a few cases the patient was admitted to a cottage hospital after discharge home from an Aberdeen hospital, because they were unfit and had inadequate home facilities for their proper convalescence.

The pattern of help showed that great reliance was placed on relatives and friends. There are, however, areas of community care which could be improved, as evidenced by ten patients who lived alone and were unable to dress themselves, yet received no help from the community services.

The information obtained on each patient's in-patient stay was extracted from the computer file of information maintained by the area Research and Intelligence Unit. This information was frequently accessed for statistical purposes, but only rarely for patient-based studies. The opportunity was, therefore, taken to determine the validity of certain items of information. It would appear that improving coding and clerical methods will reduce the margin of error, but there will remain a certain percentage of invalid information. Lockwood (1971) has shown that the validity of diagnostic data might be expected to be 95 per cent accurate. While this degree of accuracy is adequate for statistical studies or for groups of patients, it would indicate the need for caution in using such information in relation to the individual patient.

## CONCLUSION

From the two parts of this study it can be concluded that where general practitioner beds are available in Grampian Area the ratio of 1.5 per 1000 provides a suitable basis for future discussions. The importance of these beds is mainly that they are nearer to the patient's home than those in an Aberdeen hospital, providing less separation from family and friends at a time of particular stress and need, but also lies in the completeness of care which they enable the general practitioner to provide for his patients. The patients most

suited for admission to the cottage hospitals are those with circulatory or respiratory disease. These beds can play an important role in the care of the elderly, and in the terminal care of patients with malignant disease who have been transferred from Aberdeen.

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Postscript: Since the completion of this study, the Department of Health and Social Security have published a document, "Community Hospitals: Their role and development in the National Health Service". They emphasise that the community hospitals will differ from the traditional cottage hospitals, and their proposals do not materially affect my findings and conclusions.

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# CHAPTER 14

# SUMMARY

# SUMMARY


## INTRODUCTION

1. A century ago Burdett suggested that cottage hospital accommodation should be provided on the basis of one bed for every 1000 inhabitants in a rural area. There is currently no official rate for the provision of such beds.

2. The concept of the provision of comprehensive care by the general practitioner for his own patients was stated in the Dawson Report (1920) and has been a recurring theme in many reports since the inception of the National Health Service. The Hospital Plan (1962) envisaged the District General Hospital as providing the majority of beds and a large number of peripheral beds would, therefore, become redundant. The Brotherston Report (1971) recognised the great benefit to small communities of having a cottage hospital, and suggested that it was desirable to preserve and extend these facilities.

3. The use made of existing general practitioner beds throughout the country is very variable and many of the published studies are not comparable because of lack of definition of the populations concerned. Most of the published studies are descriptive and there do not appear

to be any valid comparative studies of practices with access to general practitioner beds and those without such facilities. Various studies suggest that 20 - 40 per cent of patients admitted to hospital could be cared for in hospital by their own general practitioner.

4. In North-East Scotland the policy has been to have a central hospital complex in Aberdeen and to reduce the number of general practitioner beds in the peripheral hospitals. The basis for this policy is, however, not thought by many general practitioners to be in the best interests of the patient.

AIMS OF STUDY

5. The aims of this study were:

(i) to determine a rational basis for the provision of general practitioner beds in rural areas;

(ii) to define the categories of patient best suited to care in cottage hospital beds.

Results:

The results of the study were derived from three main sources:

(1)/

(i) an analysis of all patients discharged during 1972 from the 16 cottage hospitals in North-East Scotland;

(ii) a survey in Grampian West District of possible unmet need for in-patient care of patients;

(iii) a comparative study of hospital referrals by two selected groups of general practitioners, analysing -

(a) the reasons for referring the patient to hospital,

(b) the details of the hospital episode,

(c) the patient's replies to a questionnaire after discharge from hospital.

## A. Analysis of all patients discharged during 1972 from the 16 cottage hospitals in North-East Scotland

6. There was a total of 3363 discharges from the 352 general practitioner non-obstetric beds in cottage hospitals in North-East Scotland during 1972. As the study extended over a period of one year, discharges are taken to be the equivalent of admissions.

7. The duration of stay in the cottage hospitals increased with the age of the patient. One-quarter of all patients in cottage hospitals were in hospital for more than 30 days. Just over half the patients discharged from the cottage hospitals were over the age of 65 years, and one in ten of these patients were in hospital for more than three months. One in five of the over 65 year old patients died in hospital.

8. Three-quarters of all patients admitted to cottage hospitals were fully treated in the cottage hospital. In the remaining one-quarter, the care of the patient was shared between the cottage and the general hospital - half of these patients being first admitted to a cottage hospital and then transferred to Aberdeen, while the other half were transferred from Aberdeen to the cottage hospital.

9. Discharge rates were calculated for patients from two groups of practices -

   (i) For patients from three practices with access to cottage hospital beds, the discharge rate from the cottage hospitals was 25 per 1000; in addition, the discharge rate from the general medical and general surgical units in Aberdeen hospitals was 95 per 1000 practice population.

(ii) For patients from three comparable practices with access only to the Aberdeen hospitals, the discharge rate was 110 per 1000 practice population.

10. The difference in discharge rates from the Aberdeen hospitals was confined to discharges from medical units, being lower for those practices served by cottage hospital facilities than for those practices without such facilities.

11. These results would be compatible with the hypothesis that half the function of the cottage hospital is to treat patients who would otherwise have been admitted to a general hospital; the remaining half may represent patients who would be in hospital if cottage hospital beds were available.

12. On the basis of the observed discharge rates, a suggested minimum bed requirement was calculated. The minimum ratio for the provision of general practitioner beds in the Grampian Area, excluding the City of Aberdeen, would appear to be 1.5 beds per 1000 population.

B./

## B. A survey in Grampian West District of possible unmet need for in-patient care of patients

13. To answer the question "Is there an unmet need for a hospital bed for certain patients?", a study was carried out in Grampian West District. This showed that there were patients being treated at home who, in the opinion of their own general practitioner, would have been treated more satisfactorily in hospital. This unmet need is small but amounts to five or six patients in an average practice over one year.

## C. Reasons for referring a patient to hospital

14. In nine out of ten patients a "medical" reason was given for referring the patient to hospital - in half the patients it was the degree of severity of their illness, and in half the need for investigation or for treatment that was not available outside hospital.

15. One out of five patients was in need of intensive nursing care. This was the principal reason given for referral in over half the patients admitted to a cottage hospital, but for only one out of ten admissions to an Aberdeen hospital.

16. One out of twenty patients had a social reason for admission to hospital, and this was most frequently the fact that the patient was living alone.

17. For one out of five patients the doctor stated that he would have chosen a cottage hospital bed for the admission of the patient if a bed had been available.

## D. The in-patient episode

18. In four out of five referrals to hospital for in-patient care the general practitioner was fairly certain of his diagnosis. When his diagnosis was compared with the diagnosis on discharge from hospital, there was found to be agreement in 7 out of 10 patients. The confidence with which the general practitioner made a diagnosis varied for different diseases, being higher for patients with respiratory diseases, skin diseases and accidents, and lower for patients with diseases of the central nervous system, digestive system and blood disorders.

19. Two out of five patients admitted to hospital had diseases of the circulatory or digestive systems. Patients with diseases of the digestive system accounted for 20 per cent of medical admissiont to Aberdeen hospitals, but only 5 per cent of admissions to cottage hospitals. Conversely, patients with diseases of the respiratory system accounted for only 4 per cent of medical admissions to Aberdeen hospitals as compared with 13 per cent of admissions to cottage hospitals.

E. Patient questionnaire after discharge from hospital

20. One quarter of all patients stated that they were still unfit one month after discharge from hospital - the proportion being much greater for the cottage hospital patients, who were on average older, than for those patients who had been in an Aberdeen hospital.

21. Great reliance was placed on relatives and friends to give help to the patient after discharge from hospital.

22. Three-quarters of all discharged patients had not been attended by the District Nurse, and only 5 per cent of patients had help from other official sources.

23. Ten patients were identified who were living alone and at one month after discharge from hospital were limited in their ability to dress themselves, and yet were receiving no help. This would suggest that there is an area of unmet need in the community services.

24. Travelling to and from hospital presented virtually no problems to the patients.

25. The frequency of visiting by relatives and friends was higher for patients in a cottage hospital than for those in an Aberdeen hospital. This confirms that the shorter distances facilitate visiting of patients in a cottage hospital.

DISCUSSION AND APPLICATION

26. The suggested bed ratio of 1.5 beds per 1000 population has provided a working basis for discussion on the provision of general practitioner beds in the Grampian Health Board Area.

27. The patients most suitable for care in a cottage hospital are those with bronchitis, pneumonia, cerebro-vascular disease, ischaemic heart disease or malignant disease. These cottage hospital beds also play a particularly useful role in the care of the elderly, the convalescent and the terminally ill.

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# APPENDICES

I Classification of Diseases

II Hospital Unit Codes

III Patient Needs

IV General Practitioner Questionnaire

V Patient Questionnaire

VI Validation of S.M.R.1 information

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APPENDIX I

## CLASSIFICATION OF DISEASES

| | | ICD Number |
|---|---|---|
| I | INFECTIVE AND PARASITIC DISEASES | |
| 1. | Intestinal infectious diseases | 000-009 |
| 2. | Tuberculosis | 010-019 |
| 3. | Zoonotic bacterial diseases | 020-027 |
| 4. | Other bacterial diseases | 030-039 |
| 5. | Poliomyelitis and other enterovirus diseases of central nervous system | 040-046 |
| 6. | Viral diseases accompanied by exanthem | 050-057 |
| 7. | Arthropod-borne viral diseases | 060-068 |
| 8. | Other viral diseases | 070-079 |
| 9. | Rickettsioses and other arthropod-borne diseases | 080-089 |
| 10. | Syphilis and other venereal diseases | 090-099 |
| 11. | Other spirochaetal diseases | 100-104 |
| 12. | Mycoses | 110-117 |
| 13. | Helminthiases | 120-129 |
| 14. | Other infective and parasitic diseases | 130-136 |
| II | NEOPLASMS | |
| 15. | Malignant neoplasm of buccal cavity and pharynx | 140-149 |
| 16. | Malignant neoplasm of digestive organs and peritoneum | 150-159 |
| 17. | Malignant neoplasm of respiratory system | 160-163 |
| 18. | Malignant neoplasm of bone, connective tissue, skin and breast | 170-174 |
| 19. | Malignant neoplasm of genito-urinary organs | 180-189 |
| 20. | Malignant neoplasm of other and unspecified sites | 190-199 |
| 21. | Neoplasms of lymphatic and haematopoietic tissue | 200-209 |
| 22. | Benign neoplasms | 210-228 |
| 23. | Neoplasm of unspecified nature | 230-239 |

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APPENDIX II

## HOSPITAL DIVISION OR UNIT

01. General Surgery
02. Orthopaedic Surgery
03. E.N.T. Surgery
04. Ophthalmology
05. Urology
06. Neurosurgery
07. Thoracic Surgery (including Cardiac Surgery)
08. Plastic Surgery
09. Dental Surgery
10. Other Surgery
11. Surgical Paediatrics
12. Medical Paediatrics
13. General Medicine
14. Cardiology
15. Neurology
16. Dermatology
17. Physical Medicine
18. Chest Medicine (other than Respiratory Tuberculosis)
19. Respiratory Tuberculosis
20. Geriatric Assessment
21. Geriatric (long stay)
22. Young Chronic Sick
23. Infectious Disease (other than Tuberculosis)

24. Gynaecology
25. Obstetrics - Specialist
26. Obstetrics - General Practitioner
27. Mental Illness
28. Child Psychiatry (excluding Mental Deficiency)
29. Mental Deficiency
30. Convalescent
31. Radiotherapy
32. General Practitioner (other than obstetric)
33. Accident and Emergency
34. Other

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APPENDIX III

## STUDY OF PATIENT NEEDS FOR HOSPITAL CARE

NOTE: One form to be completed for every patient treated at home but who might have been treated in hospital if a bed had been available. (See attached notes)

FOR OFFICE USE

Name of Doctor:
(BLOCK LETTERS)

Patient's age:
sex:
marital state:

Diagnosis (definitive or symptomatic) -

Duration of present episode -

Has patient been in hospital previously for same condition?

Help available in house (e.g. relatives, neighbours, etc.)

Is the District Nurse attending the patient?

What other community services are involved?

Did you try to admit this patient to hospital?

If "yes", where?(ward and hospital)

and with what response?

If you tried to admit this patient to hospital, please tick the reason, or reasons, from the list below -

- there is no-one to look after patient at home ___
- the patient requires nursing care and supervision ___
- the patient needs straight forward investigation ___
- the patient needs frequent laboratory tests ___
- the patient requires frequent parenteral therapy ___
- the patient requires special feeding ___
- the patient's condition would respond quicker in hospital ___

Reasons for deciding to treat patient at home -

APPENDIX IV

## IN-PATIENT REFERRAL RECORD

(CODING)

Hospital number - D/A - ☐☐☐☐☐☐

Patient's name - Mr/Mrs/Miss ☐☐☐☐☐☐

Home address -

Date of birth - ☐☐

Sex - ☐

Patient's own doctor - ☐☐☐☐☐☐

Referring G.P. (if different) - ☐☐☐☐☐☐

Admitted direct from O.P. Clinic - ☐ ☐

No knowledge of patient's admission (e.g.self-referral) - ☐ ☐

1. Diagnosis - ☐☐☐☐

☐☐☐☐

Confidence of diagnosis - (tick box) ☐☐☐☐

certain ☐ probable ☐ possible ☐ undiagnosed ☐ ☐

2. Duration of this episode of illness - (tick box)

hours ☐ days ☐ weeks ☐ months ☐ ☐

Has there been a previous similar episode? - Yes ☐ No ☐ ☐

3. Reasons for referral (tick appropriate box or boxes) ☐

Medical - gravity of illness ☐

- investigations ☐

- special treatment ☐

Nursing - requires intensive nursing ☐ ☐

- inadequate home facilities ☐

- lack of necessary equipment ☐

Social - living alone ☐ ☐

- overcrowding ☐

- pressure from relatives ☐

Other reasons - (specify) ☐

4. Urgency of admission - immediate ☐ within 1 week ☐ ☐

48 hours ☐ waiting list ☐

5. Investigations before admission (specify) ☐☐

6. Previous admission for same condition - Yes ☐ No ☐ ☐

If 'Yes', approximate date -

7. Given the choice, would you prefer to admit this patient to

- a cottage hospital ☐ - a general hospital ☐ ☐

8. Other relevant information. ☐☐

APPENDIX V

NAME:

ADDRESS:

With your own doctor's consent I am studying some of the problems of patients in hospital. I understand that you have been in hospital recently, and I would be most grateful if you could answer the following questions.

Dr. J.S. Berkeley,
Department of General Practice

How far is your home from your own doctor's surgery? .....

Do you live alone? .....

If NOT, who else lives in the house? .....

.....

By what means of transport did you travel to hospital? .....

When you were in hospital how often did you have visits from -

(1) Relatives? every visiting day/most days/once a week/sometimes/never

(2) Friends? every visiting day/most days/once a week/sometimes/never

(underline the answers which apply to you)

How did you travel home from hospital? .....

Please describe any difficulty you had in getting home from hospital.....

.....

Do you have a family car? .....

Are you now fit for work, or back to your normal activities? .....

If 'Yes', how long after leaving hospital? .....

If you are still not fit -

are you able to dress yourself? .....

are you able to go out for a walk? .....

is there anything you cannot do for yourself? .....

Does anyone come in to help you from any of the following -

relative/neighbour/friend/Home Help/Social Services

(underline the ones which apply to you)

Is the District Nurse attending you? .....

Have you any other problems related to your recent stay in hospital?

APPENDIX VI

## Validation of S.M.R.1 Information

The information used in the study relating to the patient's stay in hospital was obtained from the S.M.R.1 record held on computer file by the Research and Intelligence Unit. On discharge from hospital a discharge summary is completed for each patient, which is then coded by the staff of the Records Department. There are a number of possible delays in this process - delay in completion of the discharge summary by the clinical staff, coding problems, records returned for validation, and the volume of work involved in punching the information in preparation for adding it to the computer file - and there is the potential for coding or transcription errors.

The information held on computer file is mainly used for statistical purposes and only infrequently for a patient-based study. Therefore, it was desirable to assess the quality of the information on the computer file and also its availability at any one time.

A total of 1730 admissions had been recorded for patients of 20 general practitioners between 1st October 1972 and 30th September 1973. A computer search was made on 8th April 1974 (i.e. six months after the last patient was admitted to hospital). The search was made using the patient's unit number and date of admission to identify the S.M.R.1 record. Eight per cent of the total admissions (142 records) were not found on the computer file.

The remaining 1589 records were then checked for the accuracy of recording of the name of the General Practitioner. This item was selected because a manual record card was readily available and indexed in general practitioner order. It has also been found to be a useful way of defining a cohort of patients from the general population.

In these 1589 records the General Practitioner code was incorrect in 40 (2.5 per cent) records. This does not include records where the code was that of a partner in the same practice. The commonest sources of error were mis-reading the line of the code sheet relevant to the particular general practitioner, or transposition of a digit in the code number. In addition, there was no General Practitioner code (recorded 999999) on a further 17 (1.1 per cent) records. This may have arisen where inexperienced coders did not check to find the correct code. Even though this did not result in inaccurate information, it does mean that any search of the computer file by General Practitioner code would fail to identify almost 4 per cent of patients.

The more serious situation of the 142 (8.2 per cent) admissions that were not identified on the computer search was approached by first locating the actual patient record folders. This revealed a number of sources of error, which may be summarised, as follows:

iii.

| | | | |
|---|---|---|---|
| Coding complete, but not on S.M.R.1 | = | 40 | (2.3%) |
| S.M.R.1 complete, but not yet on file | = | 8 | (0.5%) |
| Not coded | = | 39 | (2.2%) |
| Missing records | = | 16 | (0.9%) |
| Coding or transcription errors | = | 27 | (1.6%) |
| Other reasons | = | 12 | (0.7%) |
| Total: | | 142 | (8.2%) |

In 31 records the coding was complete in the patient's record, but the information on the discharge summary sheet had, for some unidentified reason, not been added to the computer file. In a further 8 records the coding was complete and the reason they were missing appeared to be due to a change in the unit number codes at a point in time (1st January 1973) during the study. In another 12 records there was no coding and this had apparently been overlooked.

The cottage hospital records were examined separately and it was found that 9 records were in the process of being added to the computer file, and in 17 records no S.M.R.1 form had been prepared. The delay in the S.M.R.1 records from cottage hospitals was due to the fact that these are prepared by a variety of staff in their own time.

Coding or transcription errors accounted for 27 of the missing S.M.R.1 records. This was made up of 10 records with incorrect Unit Number, 9 records with incorrect source of admission or discharge codes, 2 records where the Unit Number had been re-allocated to another patient, and 6 records where there had been no admission on that date.

Missing records accounted for 16 omissions - 14 were missing following transfer of the patient to another hospital, when there would have been a different Unit Number, and 2 records were not traced at all.

The remaining 21 were accounted for by 4 patients who had been discharged to Local Authority care; 4 patients from the waiting lists who had presented themselves for admission but in-patient treatment was no longer required; 2 patients in whom confusion had arisen by the patient being allowed home for the week-end during their period in hospital; 3 records where the computer print-out was completed, and there seemed to be no obvious reason why the record was not identified; and 8 records that were not checked as the patient had currently been re-admitted to hospital.

For the purposes of the present study, all the necessary information was obtained from the patient's folder, with the exception of the 16 missing records. This means that 99 per cent of S.M.R.1 records were available for analysis.

The actual error rates were 2.5 per cent from the General Practitioner coding and 1.6 per cent in the unidentified admissions. Strictly speaking, the records not coded should be added to the latter figure, giving a total error of 3.7 per cent.

This analysis emphasizes the possible inaccuracies in using the computer file of S.M.R.1 records. In time, 40 of the records would be added to the file, and possibly a further 9 records might find their way there. This still leaves 92 (5.3 per cent) records missing from the computer file. The dangers are, therefore, two-fold - firstly, the elapsed time after discharge from hospital at which the search is made, and secondly, the actual error rate. This validation was found to be of value to the staff of the Records Department and the Research and Intelligence Unit, and a number of the sources of error were reviewed.

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